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AGRICULTURAL MARKETING IN INDIA

Report on the MARKETING OF LINSEED IN INDIA

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INTRODUCTION

This report bears out the fact that there is ample scope for improving the returns to linseed growers by reducing the cost of distribution from the field to the final buyer

At present the grower generally gets about ten annas of the rupee paid by the exporters and the millers located at large industrial centres in India, and only a little more than eight and a half annas out of the rupee paid by importers of linseed in the Umted Kingdom

There is plenty of evidence of wasteful plactices, for example in paying freight on dirt and unnecessary eleaning and recleaning of the linseed. Further, market charges are altogether too numerous and excessive Octror and terminal taxes hamper the trade in all directions and adulteration both of linseed and linseed oil is rumpant.

This report sets out the plain facts of the situation and shows how better prices can be obtained for producers by way of economies in distribution, by reducing the haivest time decression, by securing a premium on quality and by videning the market for their produce

The general reader is advised in the first instance to read through the inter chapters at pages 40, 60, 93, 101, 121, 138, 158, 175, 203, 240, 254, 261 and 264 It is hoped however that these may prove sufficiently interesting to lead to a more detailed study of the full report

Thanks and acknowledgments are due to a large number of traders, manufacturers and others for their kind assistance in making this report possible by freely giving their time and friendly co operation to the marketing staffs throughout the country

Note—The Government of India should not be regarded as assuming responsibility for all or any of the material contained in this report

Office of the Agricultural Marketing Adviser to the Government of India,

May, 1938

CHAPTER I-SUPPLY

A -World Production

The luneed plant (linum usulatissimum) is cultivated on a lurge scale mainly in four countries namely, Argentina U S S R (the Union of Soviet Socialist Republics), India and the United States, in their order of importance As far as world trade is concerned, how ever, the crop of the U S S R is of practically no importance as its product on concerning which the available information is meagre, is almost entirely absorbed by the internal market

While the Argentine crop has consistently been the most imhas acquired an even greater significance since the War and now entirely dominates the world linseed position. In the five year mimediately preceding the War, exports of La Platr* linseed represented about 45 per cent of the world's shipments, but between 1931 and 1935 Argentine's share of the international trade in this oil-sed had risen to 88 per cent. In 1936 and 1937 the share was 80 and 82 per cent respectively (Appendix C).

Based on the average of the world acreaget for the period 1931 to 1935 and in 1936 about 47 per cent of the total world area was located in the Argentine, but owing to the relatively high yields obtained in that country, the production of Argentine Inseed amounted during the same time to about 64 per cent of the world's supplies By far the greater part of the Argentine crop is exported. Between 1911 and 1935 on an average approximately 94 per cent of the local production was shipped abroad mostly to Europe, while in 1936 the exports were about 80 per cent of the production.

During the same period India accounted for about 28 per cent of the total world area In respect of production however India's slar was relatively lower Between 1931 and 1935 the outturn of the Indian crop on an average amounted roughly to 17 per cent of the world's production and in 1936 to 16 per cent Exports from India are variable Between 1931 and 1935 on an average 39 per cent of the crop was exported but in 1936, the proportion was a much as 64 per cent Speaking broadly, India now exports about half of her linesed crop

*Argentine linseed is also commonly described in the trade as La Plata or Plate linseed These terms will be frequently found in the report

The area and production figures of U S S R have been excluded in the consideration of world trade for the reasons stated above

Nort.—The references to percentages of Indian acreage and production in this section as well as all subsequent references to these statistics are based on revised data discussed in this Mapter, and will be found in many cases to differ appreciably from the figures which form the concentional official forecasts and are subsequently incorporated in the annual publication. ''Behmates 12 verus 1862's 1964 of the production of the first of the second of th

B-Indian Production

The innseed plant is cultivated in India not for the fibre (flax), but for its seed which y-|ds an c|1 u-cd mainly for industrial pur poses, ey, in the manufacture of varinshes and paints, etc, and, in certain narts of India, for human consumption in edible necessarians.

Linseed is predominantly a rain fed crop and is rarely cultivated under artificial irrigation. A moderate amount of rainfall seems best suited for its cultivation. In all the main inseed areas the average annual rainfall ranges between 30 and 70 inches per annual.

The plant does well under a variety of soil conditions. It from a variety in the heavy deep moisture retaining soils of Central and Prunsular India as in the lighter Gangetic alluvium of the United Provinces and Bihar. There are, however, considerable differences between the types of Imseed grown under these two soil conditions. In the former areas the plants are deep rooted grow rapidly and produce relatively fewer but boilder grains. On the other hand a characteristic of the Imseed grown in the moist alluvial soils of the Gangetic plain is a ballow root system which coupled with a slower rate of development is responsible for surfaler seed but more abundant yields.

(1) ACREAGE.

(a) Total—The area under inseed for each of the past 12 years, as published in the Estimates of Area and Yield of Principal Crops in India is shown in detail in Appendix II and may be conveniently summarised as follows—

Acreage under Lanseed in the main producing areas

	Lhouse	and acre	s)			
_	1	verage 925 26 to 929 30		1935 36	1936 37	1937 38
British India-					1	
Bengal		127	123	98	131	137
Bihar (and Orissa)	1	649	638	549	9.09	595
Bombay		116	130	113	101	107
Central Provinces and Berar		950	923	1 131	1,131	1 243
Punjab		29	29	28	31	30
United Provinces	,	938	877	845	898	948
Indian States-						1
Central Provinces States		o _o	99	130	, 130	130
Hyderabad		245	319	416	468	471
Kotah (Rajputana)	t	74	87	94	94	107
Others	1	8	33	93	51	71
Total	Ţ	3 231	3,208	3,457	3,594(a)	3 839

^{*}Provisional (final forecast (a) Revised figure 3,677

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These data are based on the annual forecasts which refer to the main producing tracts only and do not cover all the areas in which livised is grown. For example, no account to taken of Assain, Madras, the North West Frontier. Province the minor administration of Agner Merwara, certain Indian States and Burma whose areas are only subsequently shown in the publication of Agricultural Statistics of India, issued annually about a year after the Estimates of Area and Yield and some two years or more after the latest crop year dealt with. The area under linseed in these tracts will be found detailed in Appendix III and is summarised below—

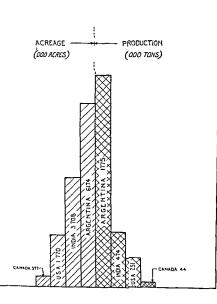
Acreage under Linseed in certain provinces and States not included in crop forecasts

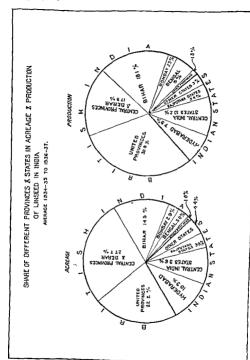
(Thousand acres) Average Averago 1925 28 1930 31 1936-37 to 1935 36 to 1929 30 1934 35 British India-Assam, Madras and others 18 11 e Ω Indsan States-208 208 218 207 Central India States Gwalior and Raiputana States, etc. Total 226 219 224 216

Enquiries made during the course of this survey also showed that there is considerable acreage under linseed in certain other Central India and Rapputana States for which no statistics are published even in the Agricultural Statistics of India nor are any records available in the States. Although annual data over an extended period could not be obtained, it has been possible to arrive at an approximation from the information specially supplied by the State Durbars concerned, and from personal enquiries made on the spot † This hitherto unrecorded area amounts to about 21,000 acres of which 150 000 are in Rewah alone (Central India) and the remain gib 60000 acres are divided among 18 States, of which the most important are Dhar (Central India) and Partabgath (Rajputana) which jointly account for 27 000 acres

Further the adjustments as between the forecasted acreage published in Estimates of Area and Yield, and the final consolidated figures shown in Agricultural Statistics of India in respect of three States Hyderabad Bhopal and Kotah (Rajputana), usually necessitate some addition to the forecasted figures—quite large in some years as for instance approximately 325 000 acres in 1923 30

ACREAGE & PRODUCTION OF LINSEED IN THE CHIEF PRODUCING COUNTRIES OF THE WORLD INTERIOR S YEARS 1931/35





It is obvious therefore that the forecasted area as well as that recorded in Agneulturial Statistics of India are both consider able understatements of the true position, and that the total acreage in fact amounts on an average to about 450 000 acres above the fore casted area. The position over the past 12 years would then appear as shown in the following table —

I otal acreage (revised) under Linseed in India (Thousand acres)

(Indusand acres)							
	Area reported in Estimates of Area and Yield (Appendix II)	Area in States and Provinces published on't in Agricultural Statistics (Appendix III)	Area in States not reported at all (Approx ; (Page 4)	Adjustments for Hyderabad Aotah and Bhopal (Page 4)	R vised Grand Total		
	4	В	С	D	E		
1925 26 1926 27	3 596 3 331	272 213	211 211	+132 +65	4 211 3 820		
1927 28	3 311		211	1			
		229		+73	3 824		
1928 29	3 109	245	211	89	3 654		
1929 30	2 802	172	211	+325	3 510		
Average 1925 26 to 1929 30	3 230	226	211	+137	3 804		
1930 31	3 009	221	211	+65	3 506		
1931 32	3 309	246	211	+58	3 824		
1932 33	3 799	220	211	-19	3 711		
1933 34	3 261	186	211	2	3 656		
1934 35	3 410	220	211	+10	3 851		
Average 1930 31 to 1934 35	3 258	219	211	22	3,710		
1935 36	3 457	294	211	•	3 892		
1936-3"	3 594(a)	216	211	•	4 021		

⁽b) Distribution of area—The map which faces page 1 illustrates the distribution of linseed acreage in India and the relative share of the different provinces and States is shown in the diagram opposite this page

[&]quot;Not yet available
(a) Revised figure 3,677

In the Central Provinces about 60 per cent of the provincial area under lineed is to be found in the eastern division, of which the three districts of Drug, Raipur and Bilaspur contain over 45 per cent. The southern division ranks second with about '3 per cit which the two districts of Nagpur and Chanda accounting for 1, put cent. while the other two divisions in the north and vest contain the remaining 17 per cent of the provincial acreage.

In the United Provinces the buseed area hes mainly in the north east and south west. The Gorakhpur and Fyzabad divisions in the north east contain over 48 per cent of the total provincial area while the Jhansi division in the south west has about 26 per cent. About 15 per cent of the hisseed area occurs in the central divisions of Allahrhad and Benures. The cultivation of lusseel in the north western districts lying in the Meerut Agra Rohilkund and Kumaon divisions is almost negligible. More than 40 per cent of the provincia crop is found in three districts alone in Gonda Goral lipur (north-east) and Jalanu (south west).

In Lihar the Muzaffurpur division contains about 41 per cent and Gave division nearly 37 per cent of the total provincial aria The districts of Champarán and Saran in the former division and Shahabad in the latter hold the largest linseed acreages

In Hyderabad more than 85 per cent of the linsetd area 1, located in the northern and western districts adjoining Berai and the Bombay Presidency namely Amangabad Parblam Nander Bln Osmanabad Bidar and Gulbarga

It the Bombay Presidency the districts bordering on Hyderibad also have the most important areas under Imseed About 82 per cent of the provincial linseed area is centred in the districts of Bijapur Sholapur Ahmedrigar and Nasil

In Bengal more than half of the linseed acreage of the province occurs in the three central districts of Nadia Murshidabad and Pahna

(c) Trend of Soungs—This is clearly shown in the diagram facing page 8 which is based on the revised data to which reference has already been made. It will be seen that there was a progressive decline from 4.2 million acres in 1925-26 to 3.5 million acres in 1929-30 and 1930-31. The area expanded again to 3.8 million acres in 1971-32 and was followed by a slight contraction in the two susceed ing cassons. Since 1934-35 however the total average rica has been we'll over 3.8 million acres and the latest wallable data for 1936-71 above the 4 million mar! Heave exports in 1933-34 due partly in the preference granted under the Ottawa Agreement checked the declining tendency of the acreage sown in 1932-33 and 1933-34 to some extent with the result that sowings increased by about 5 per cent in 1934. The upward trend was maintained in two succeeding crops and may be attributable also to the rising price level.

(d) Mixed crop—Agricultural practice in regard to the sowing of linseed is not the same all over the country—In the United Provinces and Bihar the system of sowing linseed with other crops prevails on a large scale the favourite mixtures being with wheat gram rapesced and mustard Indeed the practice is so common that the area under linseed as a mixed crop considerably exceeds the area sown pure Mixed sowings are less popular in the Central Proxines and other adjacent tracts In other parts of the country, linseed is generally sown alone

There appear to be three important reasons for maxed sowing In the first place it is a form of insurance against total crop failure Secondly when grown with wheat or other food crops, linseed is supposed to protect the latter from the depredations of cattle, wild pig, deer, etc., as these animals do not relish the linseed plant Lastly, linseed tends to exhaust the soil so that interculture with legiminous erops such as gram helps to maintain the fertility of the land

The mixed crop area in the United Provinces is estimated accord ing to an old formula suggested in 1889 (since when it has not been modified) by the then Director of Agriculture in that province of the total acreage under gram is taken as sown with linserd (ordinarily in rows) and one sixth of the total acreage of wheat barley and their mixtures is taken as sown with linseed (mostly as a border) The normal yield per acre of linseed sown as mixed of m with gram and with when bailes or wheat barles muxtures is taken as 1 5 maunds (124 lb) and 0 2 maund (41 lb) respectively is obvious that as the linseed mixed crop is reckoned as a fixed pro portion of gram and wheat acteage fluctuations in the area under these cereals reflect on the linseed acreage also. The increase or decrease in wheat and gram areas may or may no le attended by a corresponding change in the linseed acreage more so when the acreage under these cereals has been changing considerably during the last 50 years. The estimation of the present linseed area by this formula is therefore not likely to be correct

That this would actually appear to be the case is indicated by an examination of the outward rail traffic from the Gorakhmur district which very largely depends on the export market. In 1920 30 e norts from Gorakhpur amounted to 753 000 maunds out of a a cal pure sown erop of some 45 000 acres together with an area under mived sowing which unfortunately cannot be ascertained as the district figures for mixed sowings are not recorded. The mixed crop area for the province was 550 000 acres. In the following year when there was an increase of 20 per cent in the local pure sown area and probably only a small decrease in the mixed sown area of the district (as might be anticipated from a decline of about 9 per cent in the total provincial mixed area) exports from Goral h pur fell by nearly 24 per cent In 1931 37 despatches from Gorakli pur dropped to 321 000 maunds or by about 44 per cent although the local pure sown area expanded by 15 per cent and the total provincial mixed area by over 28 per cent. In 1932 33 despatches were 10 per cent below the previous year's while there was nearly 30 per cent contraction in the local pure sown area and a fall of 9 per cent in the total provincial mixed area. In 1933 34 however outward traffic increased by nearly 50 per cent to 436 000 maunds while the local pure sown area declined by nearly 50 per cent, and the provincial mixed area rose by about 6 per cent only

Speaking broadly and having regard to the unreliability of the data available, it cannot be said that the practice of sowing linseed as a mixture in the United Provinces is on the decrease. Between 1925 26 and 1929 30 the average area sown mixed was 610,000 areas while the pure crop was only 327,000 acres. In the quinquennum ending 1934 35 the mixed crop acteage was 615,000 and the pure 262,000. In 1935 36 the mixed crop had risen to 650,000 acres while the pure sown crop dropped to 195 000 acres. In 1935 37, however, the pure crop area rose to 298 000 acres and the mixed crop declined to 690 0000 acres. (Appendix II)

In Bihar, imseed is largely grown mixed with wheat or grain as a border in fields sown with other rabi crops it is also occasionally sown in paddy fields amongst the standing paddy crop. The proportion of the crop sown in these different ways can not be ascertained with any accuracy, and although all these methods exist almost all over the province to a small or large extent the sowing of linseed as a mixed crop is generally speaking, more common in North Bihar while pure sowings prevail in South Bihar.

In the Ceutral Provinces only about 6 per cent of the erop is sown mixed In the Bombay Presidency Inseed is occasionally found to be sown with wheat and gram and with mustard In the Central India States it is sometimes cultivated with gram and in Madras with Cholom (Sorophum Yulgare)

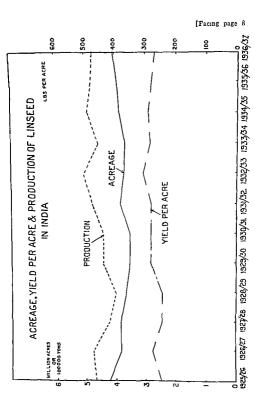
(2) Production

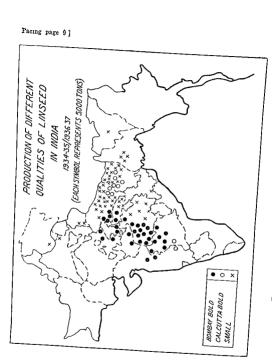
(a) Standard yields—A provisional estimate of the yield per acre of the principal crops was first made in India in 1892 and norder to provide for the periodical revision of the estimates a system of experimental crop cuttings was prescribed. From the results of these experiments reported by local governments and administrations at the close of each quinquenium standard yields are worked out These standard vields are understood to represent the average out turn on average soil in a year of average character and form the basis for estimating production during the outnamennum following.

The latest available figures for standard yield are for the quin quentum ending 1931 32. These and the standard yields of the four previous quinquennia are shown in the table below.

Standard meld of Lanseed (lb per acre)

-	Quanquenni um endrag						
Province	1311 12	1916 1-	1921 22	1926 27	1931 32		
Assam Bengal B har (and Orissa) Bombay Central Provinces United Provinces	448 49° 49° 360 2°6 500	448 413 492 360 920 700	336 467 49° 360 296 500	336 473 499 360 919 500	336 607 409 360 215 500		





The striking fact that standard yields have apparently needed no revision for 25 years in certain instances calls for a word of explanation

In Bihar while new methods of random sampling are being ex perimented on the local authorities consider it premature to use the new results and the old data continue to be maintaind for the present Similarly the necessity of improving the existing system has been fully recognised in Bombay but the introduction of any new methods had to be postponed owing to financial stringency It is understood that no crop cutting experiments were made in the Presidency during the quinquennium ending 1931 32 In Bengal the yield for the quinquennium ending 1931 32 was deduced solely from experiments conducted during the period in question without taking into consideration previous results and the raising of the standard vield was attributed to the spread of improved varieties and adoption of revised methods of calculation In the Central Provinces standard yields were only slightly modified in 1926 27 and 1931 32 Owing to the abnormal weather conditions which prevailed in some of the intervening years it was considered that the results obtained could not be taken as a satisfactory basis for revision and they were accordingly modified to a nominal extent only Although crop cut ting experiments have been steadily continued in the United Provinces no change in the standard yield has apparently been found necessary

- (b) Estimation of production -- Production is calculated of the formula area X standard vield X seasonal factor to which detailed reference has already been made in the Report on the Marketing of Wheat in India (Marleting Series No 1) It will be sufficient to notice here that the first factor area is known accurately only for the pure sown crop in temporary settled provinces such as the United Provinces Bombay etc. In the permanently settled tracts which form the great bulk of the area of Bengal and an appreciable portion of Bihar such information is extremely unreliable. The area under mixed crops whether in temporary or permanently settled areas is highly conjectural while the data relating to the Indian States is by no means complete Owing to the large proportion of the mixed erop in the United Provinces and Bihar the inaccuracy of primary data and its effect on All India statistics of area and production cannot be ever emphasised The second factor namely the standard yield is fre quently based on old and out of date information while the appraisal of the third or seasonal factor is largely left in the hands of petty village officials *
 - (c) I reld per acre—The actual yield per acre obtained by dividing the total estimated production of linseed by the acreage is considerably lower than the standard yield as in the case of weat. The yields over the past 12 years as published in Estimates of Area and Yield of Principal Crops will be found in detail in Appendix IV. The all India average summarised therefrom is given below and

^{*}The present system of crop reporting in general has been adversely crit cred in A scheme for the Economic Census of India —Bowley and Robertson (1934)

is compared with the revised all India average based on the revised figures of acreage and production, vide pages 5 and 13. The latter show some improvement in yield per acre

Arerage yield of Linseed

(lb per acre)

	Average 1925 26 to 1929 30	Average 1930 31 to 1934 35	1935 36	1936 37
Ali India Average based on Estimates of Area and Yield	2.9	275	2.1	261
All India Average based on revised figures of acreage and production	260	286	275	265
ngures or acreage and production	ŀ	l i		

The yield per acre for the whole of India during the 12 year period 1925 26 to 1936 37 has fluctuated between 246 lb in 1932 29 and 304 lb in 1932 33, with an average of 260 lb in the quinquen num ending 1929 30 and 286 lb during the 5 years ending 1934 35

Compared with the yield in foreign countries, Indian outturns per acre in the quinquenium ending 1934 35 were 34 lb lower than those of the United States, and less than half of the average yields per acre in the Argentine The average yields in these two countries for the five crops ending 1935 were 30° 1b and 636° 1b respectively

(d) Total outturn—The production of linseed by provinces and States for the 12 years, 1925 26 to 1936 37 as published in Estimates of Area and Yield in counterpart of the acreage shown in Appendix II and summarised on page 3, is recorded in detail in Appendix V. The position of each important unit of production is as follows.

Production of Linseed in the main producing areas
(Thousand tops)

	Average 1920-26 to 1929-30	Average 1930 31 to 1934 35	1935 36	1036 3~	193~ 38 §
British India-		1			1
Bengal	18	23	16	25	27
Bihar (and Orissa)	100	94	{75†	\ \begin{cases} 81\\ 1\\ 1\\ \end{cases}	87†
Bombay Central Provinces and	12	13	12	8	9
Berar	68	80	80	85	103
Punjab	3	3	2	3	3
United Provinces	147	143	147	148	157

*Grain, Seed and Oil Reporter, London

†Bihar 10rissa

(Provisional (Final forecast)

Production of Linseed in the main producing areas-could

(Thousand tons)

	Average 1925 26 to 1929 30	Average 1930 31 to 1934 35	1935 36	1936 37	1937 38
Indian States—					
Central Provinces States	7	8	5	4	8
Hyderabad	13	23	33	44	41
Kotah (Rajputana)	3	9	11	10	13
Others	1	3	6	6	8
Total	372	399	388	418(a)	40*

As is the case with the acreage reported in Estimates of Area and Yield, the statistics of production above quoted do not embrace all the tracts in which linsed is grown. Notable imissions are the Central India States of which Rewah Barwam and Indore are probably the most important Gwahor certain Rapilitania States, such as Jipur, Bundi. Tonk etc. and Kashmir. A rough estimate for tess areas calculated on the approximate yields per area and the average area over 10 years is given in Appendix VI. and amounts to an average outturn of some 57.150 tions.

A further addition to the published estimates has also to be made in respect of the production of Hyderabad Stite. It was found from the State Customs records and confirmed by the publication Accounts relating to the Inland Rail and River borne Trade of India that the quantities experted from the Nizam's Territories exceed the local production given in Estimates of Area and Yield sometimes by a large margin. As there are practically no imports of Inseed into the State (the estimated annual meconings by road are only about 20 tons, while receipt solving rail are equally insignificant) it seems clear that the outturn is in correctly recorded. The extent of this almost continual understate ment of production cannot be caused with precision but the total

^{*}Fide column B in the table on page 13

t Vide column C in the table on page 13 (a) Revised figure 420

erop of linseed in Hyderabad cannot obviously be smaller than exports plus local retention. The last factor annually amounts to approximately 4,000 tons (consisting of about 2,500 tons required for seed and domestic consumption and some 1,500 tons consumed by the local oil mills) and accordingly, the revised production in Hyderabad State would appear to be as shown in the table below—

Production of Lanseed (revised) in Hyderabad State.
(Thousand tons)

		(Anousan	a to	ns)				
-	Production as reported in Estimate: of Area and Yield	Imports		Exports as recorded by the State Customs		the State		Revised produc- tion calculated on exports plus an average local retention of about 4,000 tons
1925-26	16	Negligible		19		23		
1926 27	13	["		19		23		
1927 28	11	,,	1	24		23		
1928 29	11	25		29	ĺ	28		
1929 30	16	,,	ĺ	17	1			
1930-31	16	,	,	18		21		
1931 32	23	,,		22		22		
1932 33	18	,	ĺ	55	ĺ	26		
1933 34	26	,,	i	47		59		
1934 3	34	,,	ĺ	45		51		
1935 36	33	,		62		49		
1936-37	44*	.		_		66		
From 1000 an			_	30		44		

^{*}Prom 1936 37, production is being reported on a revised basis Exports in that year are less than the production

Taking all the foregoing factors into account the total revised production in India may be summarised below, the share of different provinces and States being illustrated in the diagram facing page 5

Total (revised) production of Lanseed in India (Thousand tons)

	Production reported in the Estimates of Area and Yield (Appendix V)	Production in areas for which fore casts are not made (Page 11)	Difference between the published and revised out turns in Hyderabad (Page 11)	Revised Grand Total
	A	В	C	D
1925-26	402	57	+7	468
1926 27	406	57	+10	473
1927 28	348	57	+17	422
1928 29	322	57	+22	401
1929 30	380	57	+5	442
Average 1925 26 to 1929 1930	372	57	+12	441
1930 31	377	57	+6	440
1931 32	416	57	+3 (476
1932 33	406	57	+41	504
1933 34	376	57	+25	458
1934 35	420	57	+15	192
Average 1930 31 to 1934 1935	399	57	+18	474
1935-36	388	57	+33	478
1936-37	•			

It will be seen from this statement that the revised outturn for the quinquennum ending 1929 30, is 69 000 tons or 16 per cent greater, and for the quinquennum ending 1934 35, 75,000 tons or 17 per cent greater than the data given in Estimates of Area and Yield This wide discrepancy would seem to indicate the necessity

for making the forecast more comprehensive than it is at present, if the data are to be of any real value to the trade

(e) Trend—The revised figures of production given in the above statement show that the total outturn of the crop during the last 12 years has varied between a minimum of 401 000 tons in 1932 32 and a maximum of 504 000 tons in 1932 33. During this period the trend of production has not always followed the trend of acreage (diagram facing page 8) and there is no evidence of any consistent trend up or down. It is however impossible to comment further on the variation in production in view of the uncertainty of the seasonal condition factor estimates and the doubtful accuracy of the production estimates to which reference has already been made

(3) QUALITY

a) Types and qualities—The nature of the soil plays an import and part in determining the quality characteristics of the linseed provided Provinces Bihar and Bengal the sub soil monsture is never far from the surface. The inseed plant of those parts has therefore a shallor and extensive ro so that The plant matures relatively fluid it throws out a large number of branches and yields abundant seed which is generally small in size. In Central India the Central Province Bombay and the Decean soil conditions are suitable only for a plant with a deep root system. The Pennisular types of linseed grow rapidly to maturity have fewer branches and form comparatively fewer seeds vincl. are bolder in size and richer moil content than the seed grown in the northern tracts.

An examination of the linseed crop made a the Agricultural R carch Institute Pusa in 1922 showed that there were at the time 26 distinct types of linseed in India each distinguished by difference in colour in the 12c of the seed and in other botanical characteristics. The size of the seed is the main consideration in the commercial classification of linseed. Colour lass a limited significance only since the great bulk of the crop is of the brown variety and the production of white and yellow linseed is very small. Moreover the latter 10d it is rarely marketed pure and is generally found mixed with the usual brown it yes.

Lineed grown in the United Provinces Bihar Bengal Assam I utilal and Kashmir is invariably of the brown variety. The crop of Central and Pennsular India is predominatingly of this type

The ellow and white varieties are cultivated on a relatively still scill in the Central Provinces Central India and some of he Ratoutana States

Most of the white or yellow linseed crop is located in the Central Provinces, where it is Inown as hower. It is found in almost every district mixed with the brown variety in proportions ranging from

1 to about 15 per cent No authentic records of the area under white or vellow linseed are available but judging from actual antivity in the markets it may be estimated that 4 per cent of the total provincial area under linseed is sown with these varieties. He total outturn of this quality is also difficult to assess owing to use absence of data but enquiries from cultivators would seem to place the yield it 55 per cent less than that of the brown linseed. On this basis about 3 per cent of the average production of the province may be taken to represent the crop of white and yellow linseed. This is equivalent to about 2 700 tons f. In Central India and Rajputana States the production is about 900 tons or not more that 2 per cent of the local crop. The total estimated production of white and yellow linseed in India is therefore less har 1 per cent of the total crop.

The white and yellow varieties are richer in oil content than the bown and it would appe that at one time the light colouries each were greatly esteemed by certain European millers, producing very pale oils. Improvements in manufacturing and refining processes, and increased supplies of the oil bearing seeds have resulted in the virtual disappearance of any special demand that may have existed formerly. At present the export trade pays no p emium for white or vellow impred.

(b) Commercial description—Broadly speaking the trade recognises two types of Inseed—Bold Brown and Small Brown in this general classification there are three comin eroid qualities termed Bombay Bold Calcutta Bold and Small each differing, from the other in size of the grain only (See plate facing page 16). The simil Inneed handled at Bombay and Calcutta is very similar at d as the lisk of the trade in small inneed is concentrated at Calcutt. the latter is often termed Calcutta Small especially in the export trade

Bombay is the natural outlet for the large grained linesed grown so extensively in Central and Peninsular India which general is everages under 135 grains per graine. This type of insced naturally predominates in the Bombay market and the distinction between Bombay Bold and Small is made according to local usage by an analysis based on the separation of small lines of from bold by a special kind of sieve. (See plate facing page 17) Linised passing it row 12 this sieve is classed as Small A free tolerance (by weight) of 10 ner cent of small linised is permitted in tenders or deliveries of 1 ordinar Bold. Mowances are charged for any proportion of small invised above 10 per cent up to a maximum tolerance of 35 per cent at which point the goods are liable to rejection at buyers soption.

[&]quot;It is also on record that one white variety experimented on at the Agn cultural College Firm Nagpur in 1933 34 give the lowest yield of any variety of linseed then under trail

tEnquiries have also shown that producers who grow white inseed a few years ago have given it up owing to the low yields. It is reported that the outturn in the best soils was barely equal to that of brown inseed in ordinary soils.

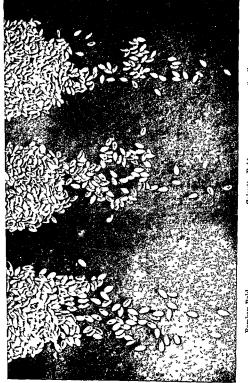
Fine bold inseed consigned to Calcutta derives mainly from the southern districts of Bihar and from the Central United Provinces It is appreciably smaller than its Bombay counterpart. Contrary to the Bombay system the standard for Calcutta Bold is fixed by count. The standard adopted by the Incorporate! Oil Seed Asso a titro: I ondon viz: 145 grains per gramme is probabilithen the mix widely is eginsed basis in India although certain buyers contracts specify tolerances ringing between 145 and 152 grains. The limit of tolerance land down in the Incorporated Oil Seed Association contract for Calcutta Bold is 153 grains to the gramme with an allowance to buyer for every grain in excess of the basic 145. Inseed having more than 153 grains per gramme automatically falls into the Small category.

The description Calcutta Small includes all the small grained varieties which form the great bulk of the production in the United Provinces Binar Bengal and Assum Broadly spealing any linserd which fails to conform to the accepted standards for Bold is termed Small and in practice any linseed having over 150 grains per gramme is classed as Calcutta Small.

(c) Distribution by qualities—In order to assertian the quality caracteristics and the distribution of the different qualities of linseed 724 commercial samples were collected at all stages of the marketing chain throughout India These samples were arounded at the Harcourt Butler Technological Institute Cawapore for their physical characteristics and a representative selection their from amounting to 205 samples were further subjected to chemical analysis for oil and moisture content. The result of this work is partially summarised in Appendix VII which shows the number of grains per gramme and the oil content in the produce of different nexts of India.

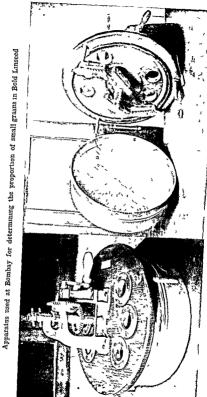
In the United Provinces the small imseed area bes in the northern districts of Gonda Basti Bahraich and Gorakhpur whence samples of the local production averaged 183 grains per gramme in the extient south of the province, bordering on the Central Provinces and some of the Central India States there is a large area producing in sec. conforming to the Bombay Bold quality viz in the districts of Hansi Jalam Hamirpur and Banda where the average was 110 gr ms to the gramme. Linesed grown in the central districts of the United Provinces such as Benares Ghazipur Allahabad Mirzapur etc. was placed somewhere between these two extremes with an avec of 154 grains per gramme. A fair proportion of the linesed given in the Benares and Mirzapur area passes as Calcutta Bold.

In Behar the northern districts grow small linseed resembling dequilities produced in the adjacent parts of the United Provinces and the average of the local crop was found to be about 100 grains to the gramme. Linseed tenderable as Calcutta Bold is however found in moderate quantities in some of the southern districts round Putpin and Gava. The average of this area was 155 grains per



Linseed grains (according to the existing commercial classification)

The grains in the illustration represent the actual size



grumme and thus bears comparison to the bild variety grown in the Central United Provinces

In the Central Provinces the eastern districts of Raipur and Drug grow small linseed averaging 164 gruins per gramme a part of which now finds an outlet through Vizagapatam on the Bay of Bengal There is a progressive and mixled increase in the size of the seed towards the west of the province. In the districts of Berar Saugor and Hoshangabad the local production averages 122 grains to the gramme while in the central parts of the province eg the Nagpur and Jubbulouce districts the average was 130 grains.

The production of Hyderabid and the Bombay Presidency consists almost entirely of large grained linseed. The Hyderabad samples averaged 129 grains per gramme while in Bombay the average was 134 grains to the gramme.

With the exception of Rewah and the neighbouring States where small Inseed predominates the Central India and Rajputana States grow bold linseed of a type tenderable against the Bombay Bold contract

Bengal produces a particularly small grained variety of inseed averaging 201 grains to the gramme

The linseed crop of the Punjab and Kashmir is of local im portance only Linseed grown in these areas and in Assam is exceptionally small in size indeed smaller than the linseed grown in Bengal

The approximate distribution of the various qualities of linsed according to the commercial classifications already referred to will be readily apparent from the map facing page 9 and from Appendix VIII

Roughly speaking the production of bold linseed corresponding to the Bombay Bold definition amounts to about 39 per cent of the total Indian crop that of small linseed to about 51 per cent and the intermediate quality corresponding to the Calcutta Bold standard to nearly 9 per cent The production of white and yellow linseed forms less than 1 per cent of the total Indian crop The quantities of different types may be roughly summarised thus

		Tons
White & yellow linseed		3 909
Bombay Bold (brown)		186 400
Calcutta Bold (brown)		40 80)
Small linseed (brown)		244 900
	Total	476 VOc

(d) Oil content—Within certain limits the oil content of lineed is elocly related to its size the larger the grain the greater being the weld of oil. The highest oil yielders are the types of

linseed grown in the Central Provinces Bombay, Hyderabad, the Central India and Raputana States and in the south of the United Provinces the great majority of which are classifiable as Bombay Bold (Appendix VII)

Using petroleum ether for extraction and on a cleaned seed basis the average percentage of oil content in linseed from the various districts of the Central Provinces ranged from 40 93 for samples averaging 127 grains per gramme from the Wardha distruct to 44 % for Hoshangabad linseed averaging 111 grains per gramme The oil content of Bombay binseed ranged from 40 by per cent in a sami le from the Belgaum district with a count of 159 per gramme 1, 41 % per cent for Sholapur linseed averaging 132 grams per gramme Hyderabad samples yielded from 42 09 to 43 12 per cent of oil the former result being obtained from a quality averaging 132 grains per gramme and the latter from another averaging 125 grains. The highest oil bearing hisseed found during the course of this survey derived from the Central India States of Bhonel Gwalice Dewas and Khilchipur The average of three samples drawn at Dewas with a count of 112 grains gave 40 00 per cent oil Samples from Gwalior and Bhopal averaging 112 and 121 respectively to the gramme showed 4548 per cent oil while as mple from Khilchipur with 121 grains yielded 4534 per cent oil The range of oil content in Raiputana linseed was found to he from 49 69 to 44 44 per cent for linseed counting 104 and 109 g and her gramme from Dholpur and Lotah States respectively

As regards small linseed the United Provinces samples showed an areage o 41.84 per cent oil with a range between 41.24 per cent and 45.21 per cent the former relating to samples drawn at Gonda veighting 178 per gramme and the latter to Benares where the samples averaged 100 gruins to the gramme. A large number of samples drawn in North Bihar averaged only 40.57 per cent oil in this case the range was from 39 off per cent for the very small gi incel produce of the Santhal Parganas averaging 229 to the gramme to 41.13 for the Saran District where the samples averaged 176 grams per gruinme Bengal linseed has an even lower oil content than Bihan and resembles the Assam quality. The average for 32 sample drawn in Bengal was only 39.45 per cent oil with a range be ween 38.25 and 41.22 per cent. Assam linseed as shown by the

The occage oil content in grains of different sizes shown in the diagram opposite page 20 indicates clearly that below 105 grains to the grainine the more or less progressive increases in oil content which is upparent up to this point or near it disappears. The exceptionally large size of bold grained linseed is sometimes due to the coatsening and thickening of the skin and is accompanied by a corresponding reduction in the oil bearing pulp within. For this reison an average sample with a count of below 105 grains [er graining gries less oil than seed having say 120 or 120 grains.

(e Inpurity content—The impurity content of linseed consists of non-deagmous matter such as chaff dust stones lumps of

earth, ecreal grains, etc, as well as other oilseeds. The extent to which these impurities are present varies with soil conditions and agricultural practices, eg, the practice of sowing linseed as a mixed erop, and the care or indifference exercised at the time of threshing, numnowing and eleaning. The proportion of different impurities contained in the production of the various provinces and States is illustrated in diagram facing page 21 and is discussed in detail in Chapter VI.

It has been found, generally speaking, that there are fewer impurities in hold linseed than in small. The results of the analysis already mentioned indicate that the average impurity con tent (foreign matter and other oilseeds) in the production of Bom bay and Hyderabad was only 363 and 359 per cent respectively The impurity content found in the bold linseed samples from the western districts of the Central Provinces from Central India and the Rapputan; States was comparatively high and averaged 559, 6 44 and 6 63 per cent respectively. The production of the north eastern districts of the United Provinces and of Bihar where the bulk of the linseed grown is small, showed an average impurity content of as much as 852 and 1011 per cent respectively. The Bold lin seed produced in these two provinces was also found to be marketed in a dirty condition although the impurity content was somewhat lower than in the case of small linseed. The central districts of the United Provinces where mixed crop sowing is largely in vogue, have a still higher impurity average of 11 47 per cent. On the other hand small linseed from the Central Provinces shows the comparatively low average admixture of 534 per cent Lanseed trom Bengal and Assam was found to have an average impurity content of 551 and 293 per cent respectively

(4) RETENTION IN VILLAGES

Innseed is retained in the village for two main purposes (a) seed requirements, and (b) for the extraction of oil in the village ghanis or kolkus* (See plate facing page 195) Innseed may also be retained for edible purposes, feeding cattle and for medicinal uses, but the quantities so consumed are comparatively small

The proportion of the erop retained for the above uses varies great yin different parts of India depending upon the local seed rate and the extent to which inseed oil is used for edible purposes (the bulk of the inseed oil expressed by ghams is not normally used for industrial purposes) Mustard oil is the most commonly consumed edible oil in the United Provinces Bihar, Orissa, and

^{*}The Ghan (or Kolhu) as a primitive arrangement on the pestle and mortar extent for the extraction of oil from seed. It is found in almost every part of India particularly in the rural views. In the village ghans the mortar more often not is much from the hollowed out trunk of a tree while the pestle is also nood sometimes ando with metal. The mode of operation is for the pestle to be ordated against the inner wall of the mortar the motive power being imparted by draught amunits such as bullocks. See page 206, Churler V.

Bengal, while inseed oil is more popular in many parts of the Central Provinces, Central India and the neighbouring tracts Consequently the tendency is for more linseed to be retained against village requirements in the latter areas than in the former

(a) For seed and for domestic use—It was almost invariably found that cultivators retained sufficient linseed on their own holdings for purposes of seed. When obliged to do so they also borrowed their seed from other cultivators or obtained it from the village bonnya or merchant on the customary terms (Chapter XI). For all practical purposes, therefore, it may be taken that the linseed riquited for seed is almost wholly found out of the village retention. As regards domestic use, however this factor is so variable as to be highly conjectural. In some localities in which linseed is an important crop, it is frequently used in the preparation of cer tain types of confectionery while the feeding of linseed to eattle is more column in some areas than in others.

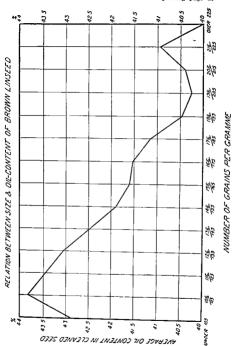
On the bass of an average seed rate in the United Provinces of about 20 lb per acre and taking a rough figure of 7,000 tons utilised in sweetments and cattle feeding—mainly in the four districts of Gorakhpur, Azangarh Ballia and Ghazpur—it is estimated that about 15000 tons equivalent approximately to 10 per cent of the local production, are on an average retained in the villages of this province

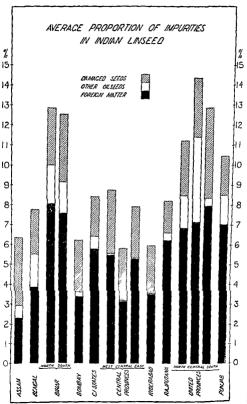
In Bibur (and Orissa) where the seed rate is approximately 12 be per acre or roughly about two thirds that of the United Prozince, it may be reckoned that about 8,000 tons, or 10 per cent of the local production, are retained in the villages including the estimated household consumption. The seed rate in Bengal is much about the same as in the United Provinces and about 2,000 tons or some 10 per cent of the outturn appears to be the average retention there also

The quantities estimated to be retained on producers' holdings and the "lilages of Central and Peninsular India for seed and domestic consumption are somewhere in the neighbourhood of 9,000 (one in the Central Provinces 1,500 tons in Bombay and 2,300 tons in Hyderabad

It will be seen, therefore, that the quantities of linseed retained for seed and domestic use in all the chief producing areas responsible for more than four fifths of the total Indian production, amount in the aggregate to something near 38,000 tons

Enquiries have also shown that similar proportions are retained in other tracts including Rajputana, the Central India States, Assam, Madras Punjab and Kashmir Accordingly therefore the total amount of linesed retained in the villages throughout the country for sowing and domestic requirements appears to be approximately 47,000 tons representing about 10 per cent of an average crop.





(b) For village ghams or kolhus—The second channel of distance are the village is through the ghams or kolhus. In addition to retention for seed and domestic use considerable quantities of I used are retained for crushing in ghams. The cake produced in the ghams is almost wholly disposed of in the villages themselves but a portion of the oil surplus to local requirements is sent to other neighbouring mix-lets usually by road. In the absence of any census of production it is quite impossible to say with any degree of precision how many ghams are in operation in India nor is it possible to arrive at any definite figures as regards their capicity or the production of linseed or unv other vegetable oil by them. These small plants handle a variety of oilseeds according to season. As opportunity offers their owners crush their own produce or oilseeds brought to them by others.

The utilisation of linseed by village glanus is discussed in some detail in the next chapter so that for the present it will suffice merely to indicate the total quantity of linseed estimated to be retain a lift or village crushing. On an average this amounts to about 50 000 tons of which about three fourths ie., nearly 50 000 tons is found in the villages themselves while the remainder is drawn from the adjacent assembling markets

The total retention in the villages and cultivator's holdings is therefore somewhere in the neighbourhood of 95 000 tons equal to about 20 per cent of the average crop

(5) SEASON OF MARKETING

(a) Time of harvesting—As has already been noticed the main producing areas full into two great natural divisions. In the north are the altivial plains of the United Provinces Bihar and Bengal, and in the south the black cotton soils of the Central Provinces Central India States Bombay and Hyderabad. The time of har vesting varies slightly in these two areas. In the former the harvesting of the expo normally commences early in March reaches its height by about the end of that month and concludes towards the middle or end of April the harvesting in Bengal and the adjacent parts of Pihar starting a fortnight to a month in advance of the United Provinces. In Central and Pennsular India however hair esting commences early in February.

(b) I enoticity—As with wheat the bulk of the linsect crop is brought to the market very shortly after it has been harvested and it effow of supplies to the marlets as greatest in the three months ame diated: acceeding the harvest. Thereafter arrivals diminish and with the cetting in of the monsoon the movement of the crop from village to market as is common with most agricultural products virturily ceases. After the rains which are normally over by the middle or end of September the surplus linseed held back in the villages gradually begins to reappear in the markets.

The volume of despatches of linseed in different months from a few important markets in four of the main producing areas have been shown over a period of years in Appendix IX along with the Listican

volume of air vals in some markets in Central Provinces* and at the terminal markets of Calcutta and Bombay The variation in the seasonal movement is also illustrated in the diagram opposite page 24

More than 41 per cent of the total despatches by rail from three stations; in the United Provinces were handled between April and June with May as the month of greatest activity the actual records as collected at ten important stationst revealed that more than 44 per cent of the outward traffic was registered during the some three months with May leading again. In Bengal where the crop matures a little earlier over 81 per cent of the des patches from two stationss occurred between March and Max slightly earlier maturity of the linseed crop in the Central Provinces also accounts for the fact that more than 43 per cent of the total annual receipts into three important assembling centres! were re corded in March, while the three months March to May accounted for more than 76 per cent of the annual total Monthly despatches by rail from seven up country centress in the Bombay presidency confirm that about 55 per cent of the annual traffic was booked between March and May, the busiest months being March and April which together accounted for nearly 40 per cent of the annual total

Detailed records obtained from the port authorities at Calcutta and Bombay also reflect the periodicity of movements in the in terior. In Calcutta for example, over 39 per cent of the average annual receipts were recorded between April and June while July, August and September accounted for 26 per cent months of lowest supplies were January and February, as their combined total was only a little more than 8 per cent of the Compared with Calcutta the new erop arrives earlier annual figure Receipts rise sharply in March and continue to increase until the peak is reached in May Of the total annual arrivals at the port more than 47 per cent were recorded during the 3 months, March to May Arrivals in June and July represent about 16 per cent of the total annual receipts, those of August less than 6 per cent, while in September, receipts rose to nearly 11 per cent due probably to the fact that this is the important delivery month of the Arrivals remained small for the rest of the season up to Tebruary.

^{*}As a large proportion of the local crop is retained in the Central Provinces for internal consumption arrivals in the markets of that province represent the periodicity better than despatches, which are a fairer index of periodical more ments in distributing areas, eg, the United Provinces and Bihar, etc Basti, Chirgaon, Orai

Buxar, Raghunathpur, Arrah, Barh, Luckesarai Warsahganj Rafiganj Palmerganj, Sasaram, Bhabua Road

⁽Chuadanga, Beldanga

Raipur, Rajnandgaon, Khamgaon

TJeur, Sholapur, Akalkot Road, Lasalgaon, Niphad Belapur, and Nagar

In common with other spring (rabi) crops the movement of linseed from he illage to the market is affected by the monsoon. although to a lesser extent as compared with wheat since not only is the inseed erop in point of size barely a per cent of the former, but it also matures earlier and is harvested and handled about a month m advince of wheat. The data quoted above indicates that by the end of May the pressure of arrivals has already dissipated itself owing to a large proportion of the crop having already been disposed of Any slackening of movement during the ramy season from June to September cannot therefore be wholly attributed to the effect of the monsoon although it is a fact that heavy and con tinuous rainful seriously impedes the movement of produce from village to market by rendering rural communications impassable An example of this may be seen in the diminished arrivals by road at the two unportant markets of Raipur and Rainandgaon in the Central Provinces The total share of July August and September in the total annual incomings is only 17 per cent. At Rajnand gaon the proportion s even smaller and amounts to less than 1 ner cent for the um 3 months

While heary rain affects road traffic movements by river and carn'l tend to increase. With the suelling of the rivers countreaft vie able to extend their operations and since the cost of transport by bort is considerably lower than by rail or even by road appreciable quantities of linseed move by boats wherever navigation is jossible. This is particularly true of the eastern United Provinces and of Bihar where the Ganges and some of its tributaries are navigally throughout the vera and especially in the rainy season. Oh pter VIII) Rail and sea movements are relatively unaffected by the rains and some of the heaviers shipments of linseed are often made during the monsoon months. Loading and discharge operations at the docks may however frequently be interrupted for a day or two by exceptionally bad weather.

C —Imports

In ports of linseed by sea are negligible and have ranged from less than I ton to 124 tons the former occurring in 1935 36 and the latter in 1999 30 These small quantities were consigned from the Persian Gulf ports to Bombay The quality of such imports corresponds to the indigenous small variety produced in the United Provinces and Bihar

Imports by land frontier routes although small are consider all greater than imports by sea and amount on an average to about 3 per cent of the Indiru crop They derive mainly from adjacent areas in Nep' and S klim on the north east frontiers of India and find their at into the northern parts of the United Provinces and Eil at Qua'ttetriely the imported linseed is identical with the smill linseed grown in British India During the five years end ing 1936 37 imports by land frontier routes averaged 13 760 tons

of which 10 090 tons or about 73 per cent passed into Bihar and the remaining 3 665 tons into the United Provinces as will be seen from the following table

Imports of Lanseed by land frontiers

(Tons)

	1932 33 *	1933 34	1934 3.,	193o 36	1936 3	Average	1937 38
United Provinces Bihar	4 480	4 060 11 7o°	2 604	3 9°2 10 358	3 208 9 ¢19	3 665 10 095	3 238 6 o
Total	16 701	1 ₀ 812	9 681	14 *80	12 89	13 "60	10 913

With the exception of 1934 35 there have been comparatively small variations in the volume of this trade in recent years. No reliable data we available concerning the production or utilisation of linseed in Nepal and the adjucent tracts so that it is difficult to account for the heavy fall of 1934 35. Since the internal demand in Indi. in wased during 1934 35 (Chapter II) the decline may be aserbled either to a sympathetic expansion in local consumption or to a crep f ilure in those patts.

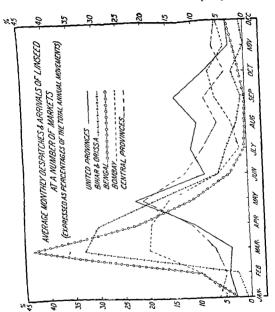
The periodicity of the frontier trade moves in harmony with the no mean of the crop in India About 37 per cent of the imports into India during the quinquenium 1931 32—1935 36 were recorded in April and May alone while from June to September the average imports represented some 33 per cent of the total annual incomings. As with the Indian crop January and February are the months in which the trade is at its lowest.

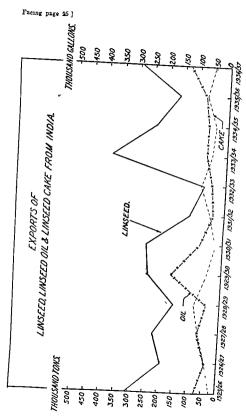
D .- Exports

(1) QUANTITIES

Exports of linseed from India which are subject to considerable variation (see diagram facing page "o) are very largely influenced by the size of the Argentine erop. The extent of the relationship is strikingly illustrated in the diagram facing page 56 With the post war expansion of the Argentine production. Indian exports have suffered in comparison with her pre-war share of the international trade. The following table shows that

^{*}Import and export statistics and all movement data refer to the fiscal year 1st April to 31st March





average shipments during the last ten years have fallen by more than one third as compared with the pre war decennium

Exports of Lanseed from India
(Thousand tons)

Pre War		Post	II ar
1904 05	5.9	1978 29	157
1905 06	289	1929 30	248
1906 07	219	1930 31	257
1907 08	310	1931 32	190*
1908 09	160	1932 33	72*
1909 10	234	1933 34	383*
1910 11	371	1934 35	240*
1911 12	599	1935 36	165*
1912 13	592	1936 37	296*
1913 14	414	1937 38	226
Average	360	Average	216

Variations in the exports of linseed are also lineled up to a certain extent with the internal demand which as will be seen in Chapter II depends on such factors as the production of older oil seeds and the relative prices of linseed and other vegetible oils principally groundnut and rape or mustard oil. When the difference between the value of linseed oil and thu, of other echible oils widens the former comes into greater demand for adulteration with the dearn cils and thus brings about a corresponding increase in the demand for linseed.

No review of the export trade would be complete without a reference to the Ottawa. Trade Agreement, which conferred a year ference of 10 per cent on all Indian Inseed imported into United Kingdom. As a result of two successive bumper crops in the Argentine exports from India had fallen to the lowest level touched

*Including Mormugao

I out—The published stituities of exports take no account of the ship ments node from foreign possess one in India The chief ports are Vormigao in Po tiguese India on the Valabri coast and Pondicherri etc alm instrairs endquirities of the French possessions in India on the Commundel coast. There are no exports of lussed from Pondicherry but in recent years Worringson and the Some importance in this respect. From an average of 344 toos 1933 to the same fallen to negligible propert on The detailed figures are given at the foot of Appendix X

m the present century just when the Conference was sitting in the summer of 1932. The indian Delegation to the conference therefore attached the greatest importance to the revival of the export trade, and considered that the United Lingdom was in a position to purchase larger quantities of Indian linseed, and that an increase in the demand from that country would probably result in an exten sion of cultivation in India By 1933 the year in which the pre ference first became operative, two other factors developed and changed the outlook for Indian linseed The Argentine produced a remarkably small crop while the outturn in the United States diminished by about 40 per cent to the exceptionally low level of 174 000 tons These conditions were largely responsible for bringing about the greatly increased demand for Indian linseed in 1955 34 Nevertheless the effect of the preference cannot be ignored as far as the coormously increased absorption of Indian linseed by the United Kingdom market was concerned By placing Argentine linseed at a disadvantage the parity at which the Indian product could be obtained having regard to its higher oil content greatly favoured the latter throughout 1933 34 Indeed at times in 1933 Calcutta h useed could actually be purchased more cheaply than Plate linseed. The ner result was that the United Kingdom took nearly 176 000 tons* of Indian buseed in 1933 34 or more than twelve times as much as the average for the two preceding years. In 1934 and the succeeding years Indian linseed has continued to enjoy a good demand from the United Kingdom and the fact that such exports have more than counter balanced the partial loss of most of India s other markets seems to indicate that the preference has on the whole benefited the Inquan export trade

It is impossible to say whether and if so how far the preference has influenced Indian accease materially although there has undoubtedly been a slight expan ion as compared with the area seeded in 1933 (table on page 3). Unfortunately as pointed out on page 9 the Bengal and Bil ar area figures are not deprivable and the proportion of luiseed in the mixed crop in the United Provinces, which has been increasing is determined by a conventional formula which tends to obscure the actual figures (see page 7). Be that as it may it seems clear that so long as the preference continues Indian Inseed will have a definite advantage over Argentine Inseed in the United Kingdom and will continue to maintain its present importance in that market.

(2) DESTINATIONS

On an average the United Kingdom has been India's larcest individual customer since the War (Appendix X) but her present relation to India's export trade has become of even greater importance owing to the Otiawa preference which came into force in the teaminmo of 1933 in the seven veri- before the Agreement (1925-26 to 1931-32) Continental Europe (mainly France Halt, Belzum and Germany) absorbed more than 55 per cent of India's exports while Great Britain's share was less than 26 per cent. The fall effect of the Ottawa preference had not ret been felt in 1932-35

Appendix X

(when it was in force only in the last three months), for in that year more than 65 per cent of Indian shipments went to European countries (chiefit France and Italy) and only about 20 per cent to the United Kingdom In 1933 34, however, there was a complete reversal in the relative shares of these consuming markets In that year the United Kingdom drew about 46 per cent of India's exports while the share of Continental Europe dropped to about 28 per cent By 1934 35 and 1935 36 exports to Continental countries declined still further to about 17 and 20 per cent while Great Britain's purchases were 44 and 55 per cent respectively. In 1936 37 the shipments to the United Kingdom rose to about 74 per cent* of the total exports while those to other European ports further declined to 12 per cent

A significant feature in recent years has been the large ship per some of the Atlantic coast ports in the United States. The United States was an entirely negligible factor in the Indian export trade in the years prior to 1932 33 but lately a succession of short crops in that country coupled with low production in Argentina caused purchases to be made in India to the extent of 85 000 tons in 1933 34 65 000 tons in the year following and 31 000 tons in 1935 38 Increased domestic production in 1936 and 1937 and large available supplies in Argentina have enabled the United States to find most of her requirements elsewhere so that her takings of Indian linseed in 1936-37 and 1937-38 have fallen being 17 000 and 7 000 tons respectively.

(3) QUALITIES

Most of the crushers in the United Kingdom and Continental Lurope usualls buy bold and small linseed indiscriminately depend ing principally on the relative price levels in the Bombay and Calcutta markets. For example if the Sterling o i f equivalent of the Bombay quotation is more favourable than that of Calcutta linseed having due regard to the quality differences (oil content) between the two types of linseed a greater volume of trade will be transacted in Bombay Bold. The converse would be the case if Calcutta Small happened to be comparatively cheaper. The avail ability of freight for the positions required is also another factor which to some extent determines whether the Calcutta or Bombay qualities are purchased.

Certain Continental mills importing their supplies through a few Milderranean ports such as Piraeus Genoa and Marseilles have a preference for the medium grained varieties approximating to the Calcutta Bold standard of 145 grains per gramme

[&]quot;In 1937 33 1 0 900 tons out of a total expert of "05 000 tons at more
than " per cent were destuned for the United Kungdom Thus does not take
into account 5500 tons " for orders happens; the destinations for which
are not declared until many months after the shipments have been made
Information obtained from various sources however indicates that the bulk of
these are destined for the United Kungdom The practice of not declaring the
destinations is common in Calcutta the object being to keep competitors in the
dark

The United States industry on the other hand is not generally interested in small linseed apart from an occasional few hundred tons shipped from Calcutta to Pacific coast ports, and has a decided preference for the Bombay Bold quality

(4) Periodicity.

The main shipping season is from April to December, and as will be seen from the statement below, shipments of inseed are on an average fairly well spaced out over this period although large variations occur in the individual months of different years

Monthly exports of Lanseed from British Indian Ports.*

(LEGISSIA COES)								
Vonths	1932 33	1933-34	1934 35	1935 36	1936 37	Average	1937 38	
April	7	10	33	6	35	18	12	
May	6	15	18	30	37	21	23	
June	6	25	39	9	25	21	23	
July	8	32	21	5	26	18	18	
August	5	48	25	2	22	21	25	
September	7	66	32	5	42	30	37	
October	7	57	35	20	29	30	24	
November	5	36	п	28	16	19	19	
December	s	43	15	15	33	23	4	
January	5	18	4	12	6	9	2	
February	6	19	1	17	9	10	14	
March	4	10	4	16	16	10	20	
Total	72	379	258	165	296	230	226	

The Indian erop begins to move to the market in March, but hipments of the new crop do not normally begin until April The experience of the past few years has shown that exports tend to increase in May and June, decline slightly during July and commence to rise again in August reaching high levels in the last four mouths of the year when the Argentine season is drawing to a close

^{*}All data relating to monthly exports (and imports) from British Indian ports are derived from Accounts relating to the Sea horne Trade and Navigation of British India

After December, Indian shipments fall off and exports are at their lowest between January and March a period which synchronises with the end of season slickness in up country markets of India Taling an average for the five years 1932 33 to 1936 37 about 26 per cent of the annual shipments take place in April May and June, 29 per cent in September and October and the remaining 49 per cent during the remaining seven months of the vear

It is interesting to compare the periodicity of shipments from India with those from the Argentine. In that country, the crop begins to move in December and exports are highest in the period January to March.

Monthly exports of Lanseed from Argentina

			(Thousand	i tons)			
Montha	1922	1933	1934	1935	1936	Average	1937
January	187	197	199	258	168	202	218
February	212	169	165	197	133	175	217
March	202	154	180	166	144	169	238
April	59	94	84	110	68	83	184
May	116	88	-0	166	87	106	103
June	152	139	71	105	73	108	96
July	172	106	82	122	119	120	112
August	153	91	98	137	92	114	97
September	194	69	93	115	150	124	104
October	138	73	91	116	132	110	151
November	199	59	62	128	133	116	111
December	130	132	158	129	150	142	142
Total	1 919	1 371	1 353	1 749	1 454	1 569	1 773

Taking an average of the five years 1932|36 about 30 per cent of the annual shipments take place in the three months January to March about 19 per cent between April and June and about 23 per cent in each of the other two quarters of the year

^{*}International Review of Agriculture

E -Imports of Linseed Oil *

(1) QUANTITIES AND SOURCES

The following table shows the position since 1925 26 Imports of Lanseed Oil into India

Imports of Lanseed Oil into India									
Year		ugh Britis ports bousand go		Through Kathia	Grand				
	United Kingdom	Other Sources	Total	war ports † (thousan gallons)	d (thousan	d tons)			
1925 26	241	1	242		 				
1926 27	230	2		1	242	2 9			
1927 28	251	3	232	1	232	2 8			
1928 29	231	-	254	1	254	3 1			
1929 30	204	5	236		236	2 9			
1930 31		2	206	1	206	2.5			
1931 32	156	2	158		158	19			
1932 33	172	5	177	36	213	26			
	172	3	175	52					
1933 34	152	1	152	- 1	227	2 8			
1934 30	158	1 (159	48	200	2 4			
1935 36	135	, 1		74	233	2 8			
1936 37	143	- 1	136	63	199	2 4			
1937 38§	1	1	144	47	191	2 3			
	114	1	115	31	146	18			
It will be	seen that	42		1					

It will be seen that the imported oil bears an almost insignificant proportion to the domestic output. During the last 3 years imports averaged 208 900 gallons only as compared with a local production estimated to average 16 250 000 gallons (67 000 tons). The amount of linseed represented by the average quantity of linseed oil imported is about 2 500 tons only whereas about 20,000 tons were on an average crushed annually in India during the triennium 1934 35 to 1936 37

The chief source of imports is the United Kingdom whence 99 recent of the oil received through British Indian ports is derived. The sources of origin of the oil imported through the Kathiawar

^{*}There are no imports of linseed cake !Trade Statistics relating to the Waritime States in Kathiawar and the State of Travancore

State on Anatomore Approximately SI gallons of oil per ton of Inseed Same Burna has been separated from India from April 1937, figures for 1937 38 do not include imports of Imseed oil into Burna, as in previous years

ports are not specifically mentioned in the Kathiawar trade statistics, but enquiries show that the bulk of such importations also derive from the United Kingdom It will be observed that the imports of oil through British ports have displayed a distinct tendency to fall off but whether this is directly attributable to the diversion of the trade to Kathiawar ports cannot be said with certainty owing to the absence of data. It is however clear that imports through the Kathiawar ports have increased since 1931 32, when detailed information first became a validable.

The table below shows that Bombay handles the great bulk of the import trade in linseed oil with Sind a poor second

Share of different provinces in imports of Linseed Oil

		Average 19°5 26 to 1929-30	Average 1930 31 to 1934 35	1935 36	1936 37
Indsa-					
Bombay		71 7	71.5	75 3	75 6
Smd		15 5	15 5	13 7	14 5
Madras		6 9	90	8 4	78
Bengal		11	0 9	13	12
Burma		4 8	3 1	13	0 9
	Total	100 0	100 0	100 0	100 0

It will be observed that Bengal a large consuming area with Calcutta as its chief port imports negligible quantities of Inseed oil. This is on account of the old established inseed crushing in dustry of Calcutta which is a large one and whose products compare favourably with the best of the imported brands.

(2) QUALITIES

Enquiries have shown that most of the importations are high trade boiled oils and that such imports consist largely of the products of one or two manufacturers in the United Kingdom. The imported article is invariably sold at a higher price than similar oils of Indian manufacture and oil merchants held that this is due not only to their consistently high quality but largely to the long

established footing obtained by their manufacturers in the Indian markets. As the manufacture of boiled oils has of late been taken up on an increased scale by the Indian industry it is probable that imports will continue to decline gradually

(3) Periodicity

During the four months July October imports usually contract to marked extent owing to the monsoon which slows down building operations and virtually puts a stop to painting and exterior decorative work. For the remainder of the year there are consider able variations

Monthly imports of Linseed Oil into India

(Thousand gallons)

	1932 33	1933-34	1934 35	1935-36	1936-37	Average	1937 38
April	14	11	29	26	25	21	24
May	23	24	27	17	12	21	18
June	20	19	24	18	10	18	18
July	9	10	10	9	10	10	4
August	10	7	3	8	11	8	4
September	14	7	6	13	17	11	3
October	19	14	10	17	10	14	9
November	14	23	17	34	16	21	9
December	30	21	53	23	14	25	22
January	30	23	20	10	20	22	9
February	24	18	13	10	23	18	¥5
March	20	23	32	9	23	21	11
Total	227	200	233	199	191	210	146

F -- Exports of Linseed Oil and Cake

(1) LINSTED OIL

(a) Quantities and destinations—During the triennium ending 1936 37 exports of linseed oil averaged about half the imports Ex ports of oil since 1925 26 and the share of some of the chief destinations may be summarised as follows —

Exports of Linseed Oil from India (Thousand gallons)

	Ceylon	Straits Settle ments	Java & the Philli pines	Others	Total	
1925 26	5	32	16	22	75	
1926 27	3	19	8	11	41	
1927 28	6	26	25	16	73	
1928 29	4	22	19	2	47	
1929 30	5	51	32	82	170	
1930 31	1	1 29	21	26	77	
1931 32	2	13	16	7	38	
1932-33	2	18	16	8	44	
1933 34	6	19	24	18	67	
1934 35	10	28	3	23	64	
1935 36	16	35	17	10	78	
1936 37	17	39	51	28	135	
1937 38	15	43	23	81	162	

It will be seen that exports were highest in 1929 30 and lowest in 1931 32 when industrial activity was at a low ebb, owing to the general economic depression. Since 1931 32 the export trade has shown a steady expansion and has during the past year more than doubled itself as compared with the average annual exports of the previous five years. Reference to the diagram facing page 25 will show that exports of oil follow the same general irend as exports of linseed.

Calcutta is the most important port of shipment and has handled on an average about 98 per cent of all the luiseed oil exported from India in the decennium ending 1930-36

(b) Quality—While the imported oil is mainly of the boiled variety exports are chiefly in the form of raw oil. A certain amount of this trade—probably about 15 to 20 per cent—consists of "reduced" oils is, oils which are made cheaper by the addition of mineral oil.

(c) Periodicity—There appear to be no marked seasonal varia tions in monthly exports The average monthly shipments based on the five year period 1932 33 to 1936 37 indicate a tendency for exports to be highest in February and March and least in May and June, as will be clear from the following table

Monthly exports of Linseed Oil from India

(Thousand gallons)

					{	1
1932 33	1933 34	1934 35	1935 36	1936 37	Average	1937 38
4	1	5	7	10	54	14
1	ı	10	3	8	4.6	16
3	1	3	5	10	4 4	32
4	3	8	8	9	6 4	19
3	6	2	6	8	5-0	5
4	4	7	5	12	6 4	11
2	7	3	7	10	58	3
ı	5	4	6	16	64	13
7	3	5	8	12	70	11
3	8	6	6	17	80	12
7	16	6	9	12	10 0	8
5	12	5	8 1	11	8 2	27
44	67	64	78	135	77 6	162
	4 1 3 4 3 4 2 1 7 3 7	4 1 1 1 3 1 4 3 3 6 4 4 4 2 7 1 5 7 3 3 8 7 16 5 12	4 1 5 1 10 3 1 3 4 3 8 3 6 2 4 4 7 2 7 3 1 5 4 7 3 5 3 8 6 7 16 6 6 5 12 5	4 1 5 7 1 1 10 3 3 1 3 5 4 3 8 8 3 6 2 6 4 4 7 5 2 7 3 7 1 5 4 6 7 3 5 8 3 8 6 6 7 16 6 9 5 12 6 8	4 1 5 7 10 1 1 10 3 8 3 1 3 5 10 4 3 8 8 9 3 6 2 6 8 4 4 7 5 12 2 7 3 7 10 1 5 4 6 16 7 3 5 8 12 3 8 6 6 17 7 16 6 9 12 5 12 6 8 11	4 1 5 7 10 54 1 1 10 3 8 46 3 1 3 5 10 44 4 3 8 8 9 64 3 6 2 6 8 5-0 4 4 7 5 12 64 2 7 3 7 10 58 1 5 4 6 16 64 7 3 5 8 12 70 3 8 6 6 17 80 7 16 6 9 12 10 0 5 12 6 8 11 8 2

As far as can be ascertained no linsced oil is shipped through Kathiawar Ports and foreign possessions in India

(2) LINSEED CAKE

(a) Quantities and destinations—What is left when the oil has been pressed out of inseed is known as inseed cake. The cake produced in the ghams is mostly consumed in the country as cattle food but practically the entire output of the modern mills, which consists of expeller and hydraulic press cake, is exported.

The following table shows the volume of the export trade from 1925 26 to 1937 38 and the share of the main consuming countries

Exports of Lanseed Cake from India (Thousand tons)

	United Kingdom	Germany	Holland	Belgrum	Others	Total
1925 26	14		4	2		20
1926 27	27	2	10	1	2	42
1927 28	34	7	20	3	4	68
1928 29	32	13	29	11	2	87
I929 30	33	3	12	2	1	51
1930 31	18		4	1	1	24
1931 32	34	3	7	3		47
1932 33	50	2	11	11	3	82
1933 34	39	1	6	4	1	51
1934 35	34		2	4	1	41
1935 36	70	!	1	1		72
1936 37	47		2	ı		50
1937 38	44	}	1		2*	47

As with linseed India's best customer for linseed cake is the binded Kingdom to which country 59 per cent of the total Indian exports during the eight years ending 1932-33 were consigned. The Ottawa preference came into operation in the beginning of 1933 and its effect was at once apparent inasmuch as the United Kingdom purchased 77 per cent of the total exports of Indian linseed cake during 1933 34. In the following year Great Britain's share registered a further expansion to 83 per cent, which went up to 97 per cent in 1935 35 and 94 per cent in 1936 37. From the latest available figures Great Britain's share in 1937 38 appears to be more than 93 per cent, and after adjusting. The orders "shipments to the Furopean countries have on the other hand fallen off considerably in recent years and are now of small importance!

Exports have shown great variability from year to year and while there is no consistent trend up or down it is interesting to note that shipments of linseed cake follow a tendency contrary to that shown by exports of linseed (diagram facing page 25), owing to the fact that when exports of linseed are low the amount crushed in India increases

^{2 035} tons " for orders " to Egypt

iThis is mainly due to quota and other restrictions on imports of feeding stuffs

L137ICAR

Bombay and Calcutta were the only ports from which linsed cake was exported until 1933, when Vizigapatam was converted into a sheltered port capable of being used by large sea going vessels at all seasons of the year Since 1933 34, about 4 per cent of the total linsed cake exports on an average have been diverted to Vizigapatam mainly from the mills in the Raipur (Central Provinces) area to which this port is now directly connected by rail

- (b) Quality—The oil contained in linseed cake varies accorded to the method of extraction employed. Cake produced in the distance of some normally contains more oil than cake turned out by efficient modern machiners such as expellers and hydraule presses. Expeller cake is marketed in small irregular pieces roughly 4" thick, and usually contains about 8 to 10 per cent of oil, although these proportions are hable to variation between 6 and 12 per cent hydraulic press cake contains about 9 to 12 per cent oil and is usually in the form of slabs about 4" thick, 3 feet long and 1 foot broad. It is softer than expeller cake, and costs more than the contains a contains a
- (c) Periodicity —From the following table it will be seen that, on an average shipments of linseed cake are lowest between March and June and moderately constant during the remainder of the year

Monthly exports of Lanseed Cake from India.

	(Thousand tons)										
	1932 33	1933 34	1934 35	193-; 36	1936-37	Average	1937 35				
April	3	5	2	3	3	3 %	3				
May	3	5	2	4	3	3 4	3				
June	7	4	,	4 -	3	40	3				
July	9	6	4	5	4	56	5				
August	10	7	3	7	7	6.8	4				
September	10	3	4	7	7	62	5				
October	6	4	3	9	6	56	6				
November	6	4	3	7	3	4.6	4				
December	7	3	5	7	4	5 2	4				
January	8	3	5	10	3	5.8	4				
February	7	4	4	5	4	48	3				
March	6	3	4	4	3	40	3				
Total .	82	51	4)	72	50	59 2	47				

G —Total and net available supplies of Linseed and Linseed products

(1) Linseed

The net quantities of linseed retained for consumption in Indiasince 1901 are shown in Appendix XI The total and net available supplies during the last three years is summarised below —

Net available supplies of Linseed in India

1934 35 to 1936-37

	usand tons	··			
	1934 35	1935-36	1936 37	Average	1937 38
Production (outturn of previous years crop)	458	492	478	476	475
Imports	10	14	13	12	11
Total supplies	468	506	491	488	486
Exports .	240	165	296	233	226
	228	341	195	255	260
Seed requirements @ 15 lb per acre	26	26	27	26	28
Net available supplies	202	315	168	229	232

The net available supplies in earlier years were considerably less, the average for the triennium 1911 12 to 1913 14 being 138,000 tons only, i.e., about three fifths of the 1934 35/1936 37 average as will appear from the following table —

Net arailable supp	olies in pi	re War yı	ears	
	1911 12	1912 13	1913 14	Average
Production (outturn of previous year s crop)	571	645	542	586
Imports	_ 11	8	7	9
Total supplies	582	653	549	595
Exports	522	354	414	430
	60	299	135	165
Seed requirements @ 151b per acre	34	28	20	27
Net available supplies	26	271	115	138

(2) LINSEED OIL AND CAKE

Of the net available supplies of Imseed after deducting exports and seed requirements, a small portion (27,000 tons or about 6 per cent of the total production) is consumed as such and the balance is converted into oil and cake yielding approximately 67,000 tons of oil or about 16 25 million gallons and 133,000 tons of cake. Adjusting imports and exports, the net available supplies of inseed oil and Inseed cake during the triennium 1934 35 1936 37 amounted roughly to 67,500 and 79,000 tons respectively as detailed below—

Net available supplies of Linseed Oil and Linseed Cake

(Thousand tons)

	Linsee	d oil	Lanseed cake		
	Average 1934 35 to 1936 37	1937 38	Average 1934 35 to 1936 37	1937 38	
Production	67	68	133	137	
Imports	0.8	0.6	Nel	N*l	
Total supplies	67 8	68 6	133	137	
Exports	3	0.6	54	47	
Net available supplies	67 5	68	79	90	

H -Note on the trade in linseed and its products in Burma.

Apparently no linseed whatever is grown in Burma except on the farms of the agricultural department. The Season and Crop Reports for the six year period 1928-29 to 1933-34 showed an aver age of 26 acres as being under linseed, but on investigation the crop thus reported proved not to be linseed.

Lusseed is imported into Burma in negligible quantities for veterinary purposes only. Consignments of 2 to 5 bags at a time are ordered by local produce dealers from commission agents in Calcutta or from their own branches where such exist in the same city. The retail trade secures its supplies at the rate of one or two bags at a time and sells to the ultimate consumer in small units varying from ½ 1b to 3 lb.

Burma obtains her requirements of linseed oil by importing from India and from foreign countries. The present extent of this trade which is detailed in the following table is of the order of about 110 000 gallons of which at the present time, less than about 2 per cent derives from sources other than India.

Imports of Inseed Oil into Burma from other countries and from

(Gallons	ŋ

	Average 1929 30 to 1931 32	Average 1932 33 to 1934 35	1935 36	1936 37	1937 38	
Imports from abroad Imports from India	7 100 122 000	4 200	1 800 107,000	1,200 118,000	2,100 105 000	

It will be noticed that imports of oil from abroad have very largely dimunished and in 1936 37 were only about one sixth of the average of the three years 1929 30 to 1931 32 Imports from India in 1936 37 however remained lower than those in the triennium referred to, although the share of India in the total imports into Burma has steadily increased Of the total quantities of linseed oil imported into Burma from other countries and from India India's share was 94 per cent in the triennium 1929 30 to 1931 32, 96 per cent in the following three year period 1932 35 to 1934 35, 98 per cent in 1935 36, 99 per cent in 1936 37, and 98 per cent in 1937 138

INTER CHAPTER ONE

The Imseed crop in India is grown for its seed and not for the fibre. Somewhere about 4½ lakhs tons of Imseed are produced on an area of about 4 million acres, and the area shows a tendency to increase. The production is concentrated mainly in the Central Provinces, United Provinces, Bihar, Hyderabad, Bombay and Bengal

The total value of the Inseed produced is somewhere about 5 crores rupees. Since only about 20 per cent is retained in the villages Inseed constitutes an important cash crop. Almost half the crop is sold in the harvest months, March, May. Linseed is also an important factor in the export trade since sometimes almost two-thirds of the total crop is exported, the post war average exports being vell over 2 lakhs tons annually. Apart from the exports of Inseed cake, the average annual value of which was about 33 lakhs, there are also exports of linseed oil amounting to one lakh gallons valued at about 1½ lakhs rupees, but this is more than counter balanced by imports of linseed oil which are more than twice the exports and are valued at about 4 lakhs rupees

The net available supply for consumption within India averages over 24 lakhs tons after allowing for seed required for sowing. This is converted into oil and cake either in country bullock driven ghants or in the larger power mills. Some of the oil is put to industrial use in the preparation of paints and varinishes, etc., but its main use is for edible purposes either as liniseed oil which is very much in favour in the Central Provinces and Central India States, or as an adulterant of higher priced oils such as mustaid oil which is in keen demand in Bengal, United Provinces, Bithar and Orissa.

The oil content depends very largely on the type of seed. The main commercial descriptions are Bold and Small seed Bombay Bold, it is found, normally consist of linseed naving less than 135 grains per gramme. In the case of Calcutta Bold the seed is smaller and ranges from 145 up to 153 grains per gramme, at which point it ceases to be called Bold and becomes Small. Of the total production about 40 per cent consists of Bombay Boid, less than 10 per cent of Calcutta Bold and rather more than half of Calcutta Small. In general the small type of seed is found in the Gangetic Plain and in Bengal the grains frequently number 200 or more per gramme. In parts of the Central Provinces the general level is about 120 grains per gramme, and in some of the Central India States 110 grains or less per gramme.

Labotatory analysis shows that within limits, the larger the seed the higher the percentage of oil. Samples drawn from Central India, with 112 grains per gramme show an oil content of 45½ per cent, whereas some samples of small linseed in Bengal give a figure as low as 38½ per cent. The larger the grain the higher the oil content holds good as a general principle until the number of grains becomes less than 105 per gramme, when apparently the size of the seed becomes affected by a thickening and coarsening of the seed coat and no increase in oil content can be observed.

It will appear later that the trade and particularly the buyers abroad do not appreciate as fully as might be expected the inherent value of the "bold" seed. There is, therefore, some need to standardise the different types so as to secure an adequate premium for the higher qualities

When taking up the standardisation of quality the question of the percentage of impurities would also have to be considered. This varies from one district to another and whereas it averages about 5½—6½ per cent in Central India the amount of impurities increases to between 8½

and 10 per cent in Bihar and in some parts of the United Provinces is as high as 11½ per cent, largely owing in this case, to the prevalent practice of sowing linseed with wheat and other grains

The position in regard to the export trade depends very largely on the Aigentine clop Indian linseed is dis tinctly better than Argentine both in regard to its oil con tent and drying properties, but the Argentine dominates the world markets owing to the fact that it produces about two thirds of the world crop and controls rather more than 80 per cent of the world trade Indian production represents about 16 or 17 per cent of the world total and she holds about the same proportion of the world trade It is perhaps not surprising that buyers abroad tend to base their business to a very large extent on Argentine linseed and this is time even of buvers in the United Kingdom who have, since the introduction of the Ottawa Agreement, taken on an average about two thirds of the total exports of unseed from India and about four fifths of the linseed cake

It would appear that as a result of the increased takings by the United Kingdom of Indian linseed there has been some increase in the production, this is however largely obscured by the very high error which exists in official statistics. As in the case of other crops the "standard yield" which ranges in different provinces from 215 lb to 500 lb is open to considerable doubt and the All India average based on official figures which amounts to only 275 lb per acre, ie, less than half the average yield in the Argentine under states the case considerably. The official statistics make no allowance for what appears to be the increasing practice of sowing linseed mixed with other crops This is the source of additional errors Allowing for the fact that 10 per cent of the linseed area which lies in un reporting Indian States, finds no place in the official records, these various

errors result in a cumulative total under-estimation in the official figures which must at least be 10 per cent. in area and 17 per cent. in production, and is probably considerably higher. It would obviously be desirable to take some steps to reduce the extent of this error.

CHAPTER II—UTILISATION AND DEMAND

A -Utilisation

The absence of statistical data has been a serious difficulty No information is available to show the amount of linseed utilised in the manufacture of oil and cake, or the crushing capacity of the mills or the country ghanis In spite of extensive personal enquiries, therefore, the figures discussed in the succeeding sections must be regarded as approximations only

(1) FOR EXPORT

Taking an average of the three years 1934 35 to 1936 37, India's exports amounted to 233 000 tons annually representing 49 per cent. of the total production

(2) FOR INTERNAL CONSUMPTION

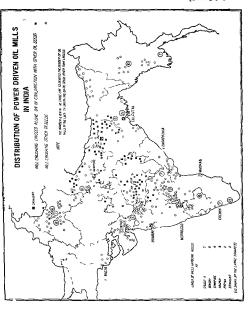
The country's requirements may be summarised as under -

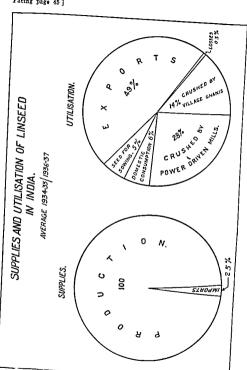
- (a) Seed.
- (b) Domestic consumption eg, for edible and medicinal pur poses and as cattle feed, and
- (c) Oil extraction
- (a) Seed -The seed rate varies in different areas as detailed in Chapter XI but at an average of 15 lb per acre nearly 26000 tons of linseed were annually required for this purpose during the past three years Locally grown seed is almost invariably used in respective of quality considerations
- (b) Domestic consumption In a few localities as for instance in the eastern parts of the United Provinces and in the Punjab small quantities of linseed are used for the preparation of a kind of sweetmeat known in the vernacular as pini These are made up in the shape of small balls and consist of a mixture of gur or jaggery (raw

Lanseed is also used occasionally in cattle feed as a "conditioner. In the towns and cities it is fed to race horses and polo ponies and is also in some demand in veterinary establishments. In addition to these various uses a certain amount of linseed is con sumed in the rural and urban areas as an ingredient in medical pre-

Of the 47 000 tons estimated to be retained in the villages for domestic consumption (evaluated to be retained in the vilinges of domestic consumption (evaluated to the village glassis) about 26 000 tons are utilised for sowing leaving some 22 1000 tons to be consumed in the countryside. In the urban areas the per capita disappearance has been ascertained to be relatively higher and accounts on an average for about 6 000 tons per annum A total of some 27 000 tons is therefore consumed for these various purposes as linseed

[Facing page 44





(c) Oil extraction -The crushing of linseed for the manufacture of linseed oil (and linseed cake) is an important industry and is responsible for the greater proportion of the linseed consumed in India Altogether, about 42 per cent of the total production on an average or roughly about 200,000 tons annually, were used for the expression of oil between 1934 35 and 1936 37 *

In the country side the oil is expressed by ghanis or kolhus operated by draught animals such as bullocks but in many towns and cities there are power driven mills equipped either with rotary ghanist or with modern machiners such as expellers and hydraulic pressest (the location of these power driven plants is shown in the man facing page 44)

Between 1934 35 and 1936 37, of the 200,000 tons estimated to have been crushed annually, about 134 000 tons were handled by the power driven mills and 66,000 tons by the village ghanis

(3) Summary of utilisation

The approximate utilisation of the linseed crop, in round figures, between 1934 35 and 1936 37 is summarised in the following table The proportionate disppearance through the various channels of con sumption is illustrated in the diagram opposite

Summary of utilisation of Tanseed in India

Supplies (excluding carry or (Tons)	rers)	Utilisation (Tons)	
Average imports	476 000 12 000	Average exports (1934-35/1936-37) Seed Domestic consumption Oil extraction Wastage, etc	233 000 26 000 27,000 200 000 2,000
Total available supplies	488 000		488 000

B -- Demand

(1) QUALITY REQUIREMENTS

Consumers' requirements in respect of linseed are not as complex as is the case with certain cereals such as wheat or rice. As hinseed

Similar in principle to the village gham, but operated by mechanical

\$See page 206

^{*}The methods adopted in arriving at this figure are discussed in detail later in this chapter

is primarily needed for the expression of oil the main considerat or apart from cleanliness is the amount of oil that can be obtained. The quality of the oil has so far not been taken into consideration and among the three main commercial qualities of Indian Inseed. Bold Calcuita Bold and Small—the difference is only of size of grain and oil content. The premiums paid for the bold types are based on the extra oil content only

Indian Inseed is not only higher in oil content by about 4 per cent as compared with Argentine linseed but oil from Indian linseed is understood to have better drying properties which enhance its value. Accordingly it enjoys a premium over Plate linseed in world markets although the amount of this premium is hable to considerable variation in different years.

An examination of the exports of linseed from Calcutta and Bombas shows the relative extent of shipments of different qualities of linseed Exports from Calcutta consist predominantly of small linseed while those from Bombay are largely of the Bombay Bold variety During the quantum mending 1929 30 nearly 58 per cent of the total exports from India went out from Calcutta and ending with 1934-35 exports from Calcutta declined to less than export exports and those from Bombay rose to about 46 per cent and dieating a higher proportion of Bombay Bold. This was due to the fact that the U.S. A had come into market for Indian linseed and had bought fairly extensively in 1933 and 1934. During the latter year about 14 per cent of the total Indian exports went to America as compared with 0.2 per cent in the preceding five years in 1930 36 about 50 per cent of the Indian export trade was concursed with 0.2 per cent at Bombay. In 1936 37 how ever Bombay took the lion is share of the export trade with 57 per cent leaving Calcutta with only about 41 per cent. This was manly

^{*}Probably less than 5 per cent of the total exports from Calcutta conform to the Calcutta Bold standard

due to the parity favouring Bombay and the increased retention in the areas serving Calcutta. The position was reveised during 1937 38, when Calcutta handled about 60 per cent of the total amount shipped from India, Bombay only 40 per cent, and Vizagapatam the remaining 5 per cent.

(b) For internal consumption -Generally speaking, Indian oil milling industry has little choice in the type of linseed used Geographically, the areas producing the different qualities of linseed are fairly clearly demarcated, and as the mill generally draws its supplies from the nearest area of surplus production, the location of the mill is the main factor in determining the quality crushed Mills procuring their supplies from the north of the United Pro vinces, Bihar, Bengal etc., obviously do not obtain linseed of the Bombay Bold class whereas the mills in Western India receive an insignificant proportion of small linseed. It is only in the compara tively few localities in which more than one class of linseed is economically available, that the question of any preference for any particular quality can arise For example, at Calcutta where both the Calcutta Bold and Small qualities are traded in regularly the local mills definitely prefer the former quality not only because of its higher oil content but also because of its comparatively greater cleanliness as compared with the small linseed produced in Bihar and the United Provinces As, however, supplies of bold linseed reaching Calcutta are inadequate the mills are obliged to purchase relatively large quantities of small linseed and owing to lack of sufficient storage accommodation in many instances both qualities are stacked together in the same godowns and are crushed indiscri minately To some extent this would appear to account for the fact that the premium actually paid for bold linseed in Calcutta is seldom commensurate with its higher oil content

The owners or operators of ghans and holhus crush whatever kind of linseed they can obtain most conveniently and cheaply Normally their supplies are drawn from the immediate neighbourhood irrespective of quality

Special quality characteristics in regard to size or oil content are therefore not given adequate consideration at present in the binaced consumed in India

(2) QUANTITATIVE REQUIREMENTS

Excluding the total requirements of the export trade and the amount of inseed needed for seed and domestic consumption the largest quantities are consumed in the extraction of oil. The demand for this arises from two main sources

1

(a) Power driven mills

In the absence of statistics the quantity consumed by the milling industry can at best be only a rough estimate. There being over

550 oil mills* it was not an easy matter to collect information as to their recurrencents of this oilseed. Of these establishments about 430 do not crush any lunseed at all and of the 123 concerns which were ascertained to have crushed linseed during 1936 77 only a few handle linseed exclusively while the great majority crush other oil seeds as well as linseed.

An attempt was made to ascertain the quantity of linseed crushed is using a questionnaire to every known concern. This was supplemented by personal enquiries wherever possible. A number of the large establishments readily compiled but the response ferm numerous small concerns was not encouraging. Some apparently possessed no records while others were char; of giving any detailed information.

It was necessary, therefore, to attack the problem from another angle Information obtained from a number of nulls, and the results of other enquires indicated the proportions of linsed exported and consumed locally. From this it became possible to estimate the production of cale from the detailed export statistics available the total amount of linseed crushed in the country could thus be calculated. The fact that almost all the cake turned out by hydranhic presses and expellers is exported while the production of cake from rotary ghams is consumed locally, helped materially in achieving this object.

The Imseed cake production of the oil mills in Bengal Bikst and the United Provinces is exported from Calcutta while the out put of the mills in the Central Provinces Central India Rajputans Bombay and Hyderabad is shipped through Bombay! The Punjab and Kashmir do not export any inseed cake The position may therefore be conveniently examined under the following 3 groups

- (1) Areas exporting cake through Calcutta -- United Pro vinces Bihar Orissa and Bengal
- (11) Areas exporting cake through Bombay and Vizaga patam—Central Provinces, Central India Rapputana, Hyderabad and Bombay
- (m) Areas which do not export cake —Punjab and Kashmir
- (1) Areas exporting cake through Calcutta —United Provinces, Bihar,
 Orissa and Bengal

United Provinces -- Out of 61 mills operating in the province 27 crush linseed in quantities which vary from year to year Most of

In recent years small quantities of cake from the Central Provinces have been consigned from Vizagapatam.

^{*}tecording to the publication 'Lorge Industrial Establishments in India' united by the Department of Commercial Intelligence and Statistics the latter of the Commercial Intelligence and Statistics the latter of the Commercial Intelligence and Statistics that Statistics are supported by the Commercial Intelligence and States possible that the Commercial Intelligence and States possible that the Commercial Intelligence and Intell

these establishments also handle other oilseeds Broadly speaking, much of the eake turned out by expellers and hydraulne presses is consigned to Calcutta, mainly for commission sale to shippers, while the product of the rotary ghams is sold and consumed locally. Taking the United Provinces as a whole, enquiries show about 60 per cent of the cake produced is at present consumed within the province or in adjacent areas. The remaining 40 per cent is consigned to Calcutta and eventually shipped abroad.

From data collected from almost all the inseed crushing mills in the province the total quantity crushed in 1934 35 was estimated at 19,000 tons of which the Cawnpore mills handled about 7 000 tons the mills at Agra and Jhansi about 2 000 tons, those at Benares 4,000 tons and the mills at other centres approximately 6,000 tons

Bihar—There are some 38 mills in this province of which 26 are reported to crush linseed. A few of the mills are equipped with expellers or presses but the majority operate batteries of rotary ghams and are permantly concerned with the crushing of mustard and rapesced. About 80 per cent of the inseed cake produced in this province—the output of rotary ghams—is consumed locally The balance of 20 per cent, representing the great bulk of the expeller cake output finds its way down to Calcutta where it is sold to exporters through commission agents. The quantity of linseed estimated to be crushed by the large mills in this province during 1934 35 was about 15,000 tons.

Bengal —Linseed erushing in Bengal is concentrated at or in the munediate vicinity of Calcutta and is a highly developed industry in this province. Of the 44 mills working in the province, 9 crush linseed, and of the latter at least two work all the year round on linseed exclusively. These mills are all equipped with modern machinery consisting of expellers and hydraulic presses

There are fewer variations in the quantities of linseed cruished from year to year in Bengal than in either Bihar or the United Provinces. The actual records of 3 large mills, including one dealing exclusively with inseed showed that during the 4 calendur years 1932 35 a little more than 12,000 tons was consumed annually on an average, the range of variation being from 10 460 tons in 1934 to 13,193 tons in 1935. Altogether about 25 000 tons were cruished in Beingal during 1934 35, almost the whole of the cake pro luced therefrom being destined for the export market.

^{*}It is noteworthy that the local consumption of thuseed cake appears to be on the increase in the eastern districts of this province. This may in part be due to the fact that in recent years several parcels of inseed cake deriving from this province and shapped from Calcitat to the United Kingdom, were repetted on arrival at destination owing to the presence of castor seed or lank (see Chapter X). For this reason exporters avoid purchasing linesed cake produced in the United Provinces except under special terms. The unlik therefore prefer to sell their cive locally as they find the terms of local sale less oncrow. A few reputable manufacturers however still export the whole or a large part of their output of terpler and press cake.

The following table therefore summarises the position in the areas served by Calcutta -

Estimated production retention and export of Linseed Cake relating to the areas served by Calcutta

			L	Ī	I
	L nseed crushed in 1934 35	Cake produced	Proportion of cake estimated to be con sumed	Quant ty of cake consumed	Quantity of cake available for expor
	(tons)	(tons)	locally	(tons)	(tons)
United Provinces Bihar (including Orissa)	19 000	12 700	60%	7 620	5 080
Bengal	15 000	10 000	80%	8 000	2,000
	25 000	16 700		- 1	16 700
It will be observed t	59 000	39 400	39%	15 620	23 780

It will be observed that out of a total estimated production of 39 400 tons of cake in 1934 35 15 620 tons are reckoned to have been consumed within the country (largely within the areas of production themselves) leaving a calculated surplus available for export approximating the actual exports of linseed cale from

(11) Areas exporting cake from Bombay (including Vizagapatam) — Central Provinces Central India, Rasputana, Bombay and

Central Provinces -- Linseed oil is greatly in vogue as an edible oil in this province and most of the local mills crush linsed either exclusively or in conjunction with other oilseeds such as groundnuts sesamum etc Of the 64 mills in the province at least 41 have been acsamm ene of me of mins in the province at least 11 have been show that 58 643 tons of inseed were crushed in the five years. 1930 31 to 1934 35 which is equal to an annual average of 1170 tons Having regard to the estimated capacities of the other mils the total quantity of linseed crushed in this province during the 5 years ending 1934 35 may be taken roughly as 40 000 tons per

About 44 per cent of the total cake production is estimated to be retained within this province

Bombay - The crushing of linseed is undertaken by only 8 of the 6° mills in the province and is mostly concentrated in the city of Panham mills in the province and is mostly concentrated in the city of Panham mills and province and is mostly concentrated in the city of Panham mills and province and is mostly concentrated in the city of Panham mills and province and is mostly concentrated in the city of Bombay The total amount of linseed crushed annually during the five years ending in 1934 35 is estimated at 9 000 tons

Hyderabad Central India and Rayputana States - The oil mills in Hyderabad are chiefly concerned with groundnuts only 3 of the 81 mills in the State crushing linseed The total average yearly

consumption is estimated not to exceed 1,500 tons In Central India, appreciable quantities of inseed are crushed in the State of Indore and Gwalor, while Kotah, in Rajputana, is also of some importance. The total quantity of linseed handled by the mills in these three areas is estimated to be in the neighbourhood of 5,000 tons annually. As in the Central Provinces, about 44 per cent of the total cake output of the mills is consumed locally and in adjacent tracts.

The situation in the areas served by Bombay and Vizagapatam may therefore be summarised as follows -

Estimated production, retention and exports of Linseed Cake relating to the areas served by Bombay

	Lanseed crushed sanually during the quinquen nium ending 1934 35	Cake produced	Proportion of cake estimated to be consumed locally	Quantity of cake consumed locally	Quantity of cake available for export
	(tons)	(tons)		(tons)	(tons)
Central Provinces	40 000	26 700	44%	11 750	14 950
Bombay	9 000	6 000			6 000
Hyderabad	1,500	1 000	44%	440	560
Central India and Rajpu tana States	5 000	3 300	44%	1,450	1,850
	55,500	37,000	37%	13 640	23,360

With an estimated local consumption of 13,640 tons out of a total production of linseed cake amounting to 37,000 tons the balance available for export works out at a figure approximating the actual exports of linseed cake from Bombay and Vizagapatam over the five years endung 1934-35 which averaged 23,330 tons annually

(111) Areas which do not export cake abroad -Punjab and Kashmir

The cake produced from the innseed crushed in the Punjab and in Assimir is all consumed locally and is not exported outside these areas. In Kashmir, the consumption by mills is estimated to be about 3,000 tons. In the Punjab, a certain amount of linseed crushing is done by power driven ghans but the quantities involved are small, and are apparently in the neighbourhood of 200—250 tons annually. The total quantity of linseed crushed each year in these two areas may be reckoned not to exceed 4,000 tons.

(1v) Total requirements of the power driven mills

As has already been mentioned exports of linseed cake from Calcutta represent some 61 per cent of the total cake production Listical

of the United Provinces Bihar, Orissa and Bengal while exports from Bombay and Virigapatam jointly account for about 63 per cent of the total amount of linseed cake produced in the Central Provinces, Central India, Rajputana, Hyderabad and Bombay this basis, the total production of linseed cake in these areas during the nast three years would appear to be somewhat as follows -

Total estimated production of Linsecd Cake in India

		Expor	ts of cake	Product	on of cake	
1935. 36 23 000 17 000 38 000 27 000 65 000 1936 37 25,000 25,000 44 000 116 000 Average 25,000 25,000 40 000 40 000 8,000	1924 2.	from Calcutta	Calcutta Bombay		Central Provinces Central India Rajputana Hydera bad and	production of
1936 37 4 5000 28 000 72 000 44 000 116 000 Average 25,000 25 000 40 000 40 000 80 000	193 ₀₋₃₆	1 1	17 000	38 000	27 000	45.000
Average 25 000 40 000 40 000 80 000	1936 37	1	20 000		1	
	Average	I		40 000	40 000	

As 3 tons of linseed yield approximately 1 ton of oil and 2 tons of eake inder ordinary conditions of commercial production, the linseed required for the production of 87 000 tons of cake the average of the production of 87 000 tons of cake the average of the production of 87 000 tons of cake the average of the production of 87 000 tons of the 87 000 tons o age for the three year period referred to in the above table, would

Adding to this figure the 4,000 tons estimated to be crushed in the areas not exporting cake it will be seen that 134 000 tons of annually during the three year period ending 1936 37

(b) Village ghams

The extent of the demand from these indigenous plants is much more difficult to estimate Their numbers are generally unrecorded and even where such information exists it cannot be regarded as very reliable Again the size and the crushing capacity of the ghants vary in the different districts. A further difficulty arises in that the period devoted to Inseed crushing depends on a number in macture person devoted in miseen crusting depends on a macro of factors such as the locality the season of the year the production of larged in relation to other offseeds and finally, the prices of other

United Provinces -In this province the census of livestock and agricultural machinery published in 1935 gave the total number of bullock driven ghams as 147733 In the western United Provinces no linseed is apparently handled by the ghans. In the central and eastern parts however a certain amount of linseed is so cutshed in addition to the other main oilseeds of those areas. Personal enquiries made in the various districts of this province would seem to indicate that approximately 15 000 tons of linseed are crushed in the ahans in an average year.

Bihar and Orissa—The number of ghants operating in this area sunrecorded. It was ascertained however that linseed crushing by ghant tales place to a greater extent in the producing areas in the north eastern and southern districts than in other parts of the province. The provincial report estimates the average annual consumption by the ghants at about 13 000 tons a figure subject to variation from vear to year according to the relative prices of mustard or rape oil and linseed oil

Central Provinces—Published records show that there are 18551 ghains in this province. The present survey has shown that about 5 000 of these crush linseed the annual consumption being in the Manual of Short 17 000 tons.

Other Provinces and States—In Assam Bengal and Madras there appear to be no instances of linseed being crushed by ghans. In the Punjub linseed crushing is confined manly to the districts of Kangra Gurdaspur and Hoshiarpur and involves about 1700 tons In Kashmir about 1000 tons appear annually to be crushed in the ghans.

As regards the Indian States linseed crushing by ghanis is not the Central India and Rajputana States. The estimated quantity of linseed crushed in Gwalior Dhar Narsingarh Chattarpur Nagod Rewal et amounts to about 18 000 tons.

Summary of consumption by ghanis—An estimation of the annual variations in the amount of linseed handled by the ghanis cannot be made in the same manner as has been possible in dealing with the power driven mills— I part from the impossibility of obtain mig details from the three or four hundred thousand ghanis scattered all over the country—the bulk of the oil and all the output of cake is consumed locally so that no proper records are available—The total given in the statement below must therefore be regarded as a rough average figure only subject it may perhaps be assumed to Jearly variations in like proportion to the power driven mills—consumption of hussed

Approximate quantity of Linseed estimated to be crushed by ghants
annually

United Provinces Bihar (including Orissa) Central Provinces Central India and Rajputana Punjab Kashmir	Tons 15 000 13 000 16 500 18 000 1 700 1 500
Total	65 700

L1371CAR

(c) Summary of total utilisation of Lanseed for oil extraction in India

From what has already been said it would appear that the aver aminal requirements for both power driven mills and villare ghants for the triennium 1934 35/1936 37 were roughly as follows—

	Tons
Power driven mills	134 000
Village ghanis	66 000
Total linseed erushed	200 000

Assuming the proportion of oil extracted to be approximately one third by weight of the quantity of Inseed crushed the total amount of oil manufactured annually on an average during the above period would be nearly 67 000 tons equivalent to some 16 25 million gallons.

(3) FACTORS AFFECTING THE DEMAND

(a) For export—As already indicated in an earlier section the export demand to a very large extent is influenced by the size of the Argentine crop (diagram facing page 56). The production in the United States also has some bearing on the export demand for Judian Inseed. The United States is a producer of Inseed but his frequently to supplement her domestic supplies with imports which are necessarily larger in vears when her own crop is deficient. The great bulk of such imports is normally drawn from Argentina but in years of exceptionally short crops—particularly when a small crop is simultaneously harvested in the Plate—a demand to created in the United States for the inseed grown in India the only country in the world other than the Argentine baving an exportable surprise of any magnitude. This has actually happened in more than one season since 1933.

Another factor which has a direct bearing on the volume of the Indian export trade is the premium at which Indian linseed can be purchased abroad as compared with Plate linseed. This is governed to a great extent by the size of the latter erop. In years of abundant supplies of Argentine linseed the differences between the quotations for Indian and Plate linseed naturally tend to widen until a point is reached at which it pays to buy the latter quality having due regard to the adjustment of such factors as (1) the difference in the London selling basis which according to the Incorporated Oil Seed Association Contract is ' pure' for Indian linseed and 4 per cent for Plate (n) the relative amount of oil content and (iii) for sales in the United Kingdom the 10 per cent import duty which is levied in that country on linseed of non Empire origin The other and least tangible element, also probably the most unportant is the market factor which coupled with the known constants enumerated above goes to make up the extremely variable price differences between Indian and Plate linseed. It is impossible therefore to determine a fixed point at which both Indian and Argentine linseed are an equally good "buy ' The question is discussed in a more appropriate chapter dealing with prices

In a general way, however, it may be said that Indian linseed in intrinsically worth about 15 per cent more than Argentine, having regard to the basis of price quotations in London and their oil content. It is significant therefore that whenever the premium has approached this proportion or has fallen below it, large exports of Indian linseed have resulted. Further, the narrowing down of the premiums usually synchronises with a small Argentine erop. The size of the Indian crop bears little or no relation to the volume of linseed exports from India. All these features will be observed from the following table and in the diagram facing page 56.

Comparison of premiums for Calcutta over Plate Linseed and exports from India

-	Premium for linsced ov linsee	er Plate d c ı f	Argen tine production	Indian pro duction (previous year s crop)	Exports from India	Percentage of exports from India to produc
	Per ton	Percentage of Plate price	Million tons	Thousand tons	Thousand tons	tion
1927 28 1928 29 1929 30 1930-31 1931-32 1932 33 1933 34 1934 35 1935 36 1936 37 1937 38	928 29 2 14 10 1929 30 1 13 10 10 13 10 10 13 10 10 13 10 10 10 10 10 10 10 10 10 10 10 10 10		2 20 2 06 1 95 1 25 1 25 2 22 1 55 1 56 2 00 1 40 1 82	473 422 401 442 440 476 504 458 492 478 475	223 157 248 257 120 72 383 240 165 296 226	47 2 37 2 61 9 58 2 27 3 15 1 76 0 52 4 33 5 61 9 47 6

⁽b) For internal consumption—The demand for linseed for internal consumption is subject to a number of somewhat complex factors. Apart from the relatively small quantities which are required for sowing and domestic consumption the bulk of the linseed retained in the country is required for the production of linseed oil. Consequently the demand for linseed depends on the demand for its oil. In the western countries linseed oil is primarily regarded as an industrial oil except on the comparatively rare occasions when on account of its exceptional cheapness as compared with other vegetable oils, it attracts the attention of refiners for the edible trade. In India however, it is much used for edible purposes not only in its pure state but as an adulterant in other vegetable oils.

No statistics whatever are available regarding the quantities of linseed oil utilised in the manufacture of paints varnishes or for

other industrial purposes, but from enquiries made during this survey it is estimated that not more than one third of the total production of linseed oil or about 53 million gallons equivalent to some 22,000 tons is consumed in industrial requirements. The remaining two thirds amounting to 11 million gallons or nearly 45,000 tons is utilised for edible purposes, either pure or in admixture with other oils.

Lunseed oil, as such, is one of the principal edible oils in the central parts of India, notably the Central Provinces Its demand therefore is fairly constant in these tracts. In Northern India—Punjab, the United Provinces, Bihar and Bengal—where mustard and rape oils are the chief edible oils, linseed oil is only used for mixing with the former when the relative price factors are favourable. The quantities used in such admixture are subject to constant fluctuations from month to month and year to year according to the relative prices of other adulterant oils.

In this respect groundbut oil is the greatest competitor of linesed oil as both are suitable for admixture with mustard oil the pungency of the latter overcoming the comparatively bland characteristics of the two oils. The choice between the two depends therefore, on their relative cheapness. The demand for inseed oil mercases or decreases according as the margin between the prices of linesed oil and that of the other two oils widens or contracts. The demand for adulteration purposes is accordingly elastic in the extreme and liable to considerable variation.

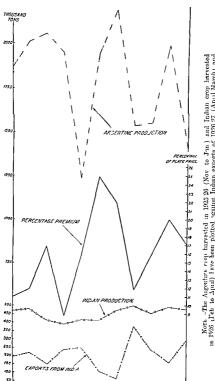
The following table which gives the average annual prices of mustard groundant and linseed oils at Calcutta from 1931 32 to 1936 37 shows the relative prices of these oils in different years —

Average annual prices of Mustard Groundnut and Linseed Oils at Calcutta (ex. mill)

(Per mannd)

	Mustard Oil	Lanseed Oil	Ground nut oil	Excess of mustard oil price over linseed oil	Excess of groundnut oil price over linseed oil		
	Rs A P	Rs A P	Rs A P	Rs A P	Rs & P		
1931 32	14 6 4	10 4 8	12 15 0	4 1 8	2 10 4		
1932 33	12 14 8	9 4 4	13 15 6	3 10 4	4 11 2		
1933 34	11 0 2	8 5 0	9 11 0	2 11 2	1 6 0		
1934 35	13 2 8	9 6 4	10 0 10	3 12 4	0 10 6		
1935 36	15 0 2	10 14 6	13 7 10	4 1 8	2 9 4		
1936 37	14 2 4	11 12 2	13 10 4	2 6 4	1 14 2		
1937 38	16 15 0	13 2 0	13 15 6	3 13 0	0 13 6		

Premium for Calcutta linseed over Plate linseed at London, exports from India and production of linseed in India and Argentina



ותקובו של בובו בתיובה בתיובה בתובבה בת בה ותקובה התיובה בתיובה בתיובה בתיובה התיובה

and Indian crop harvested 1926 27 (April March) and 1926 (Teb to April) lave been plotted against Indian exports 30

Pacing page 57]

COMPARATIVE PRICE MARGINS BETWEEN LINSEED GROUNDNUT & MUSTARD OILS AND ESTIMATED ANNUAL CRUSHINGS & RETENTION

OF LINSFFO IN INDIA THOUSAND EXCESS OF MUSTARD OIL RUPEES TONS OVER LINSEED OIL PER500 EXCESS OF GROUNDNUT DIL MAUND OVER LINSEED OIL RETENTION IN INDIA ESTIMATED ANNUAL CRUSHINGS 450 400 350 300 250 200 150 100 50 1934 35 SHONTHS

The differences between mustard and linseed oil and groundinut and linseed oil are illustrated in the diagram facing this page logether with the quantities of linseed retained annually in India and the amount estimated to be crushed in each year. It will be seen that there is a striking relation between these differences and the demand for linseed oil, and consequently, the quantity of linseed required for internal consumption. Whenever the differences widen, indicating that linseed oil is relatively the cheapest of the three the retention and consumption of linseed rives, when opposite conditions arise, more linseed is available for export.

(4) Periodicity

The periodicity of exports has already been discussed in Chapter I as regards the internal consumption, enquiries show that larger quantities of linseed are used for domestic consumption in the wind the part of the year, but there appears to be no very marked periodicity in the quantities used for oil extraction. The village ghans as a rule, crush more linseed in the three months following the hirvest, but the demand from the power driven mills shows no definite seasonal features though there must obviously be a natural tendency on their part to buy and store linseed (if godown accommodation is sufficient) between March and May when supplies are most abundant and prices usually at their lowest. For this reason monthly figures given by a few of the large mills show that purchases and actual crushings seldom synchronize although many small mills are compelled to buy linseed from day to day to meet the demand for oil as they do not possess enough godown space and cannot accumulate supplies of the raw material when the market is favourable

As an example of the variation in annual crushing the output of a single mill between February and April in 1934 amounted to 40 per cent of the full year's outturn, while in the next two seasons the amount of inseed crushed in the same period decreased to 28 and 26 per cent. An number of similar instances could be cited

(a) TREND

The trend of the export demand which has already been discussed indicates that the quantities available for consumption in India differ very widely from year to year confirming the variability of the demand for internal consumption. From the data already quoted in this chapter it seems clear that there is no consistent trend in the demand for inseed one way or the other. The actual figures of annual crushings in a number of mills, given in the table on the next page, also lead to this conclusion and show that the consumption of tinseed in this country is expanding if at all very slowly. Having regard to the small quantities of linseed oil imported it would appear that the present production in India is sufficient for all normal requirements leaving ample supplies for the export market whenever needed.

Consumption of Linseed by certain large mills

(Tons)

	1931 32	1932 33	1933 34	1934 35	1935-36.
Mul A	9,350	7,550	7 300	8 500	7 80€
В	2 500	2 300	2 400	2 634	2 422
C	2 473	ə 296	1 982	1 792	3 054
D	3 172	3 601	1 369	3 571	3 843
E	1 487	2 686	2 670	2 622	2 834
¥	892	1 724	1 164	1 148	1 100
C	890	880 1	723	530	883
Total	90 764	24 295	17 608	20 797	21 936

(6) INTER-PROVINCIAL TRADE

A good indication of the demand for linseed in the different provunces and States is provided by the morement of the copy from one area to another (See map facing page 66). It has been men toned earlier that the lusseed producing areas he in the United Provinces Bihar Central Provinces, Bengal, Bombay Hyderabad and Central India and Rapputana States These tracts retain Emporation of their production for seed domestic consumption and for crushing into oil the surplus being exported to other provinces or to the ports for shipment abroad Although movement takes place by rail river and road the great bull of such traffic is carried by rail and may therefore be taken as a fair index of the trade between different provinces and States. This is summarised in Appendices XII and XIII

On an average for the three years 1934 85 to 1936 37 the United Provinces retained 52 per cent annually Bihar 27 per cent and the Central Provinces 77 per cent of their respective productions to the comparatively large internal requirements of the Central Provinces are met by local production as well as by small importations from the adjacent tracts in Hyderabad and Central India The United Provinces' demand is met by linseed produced within that province supplemented by imports from Bihar and Central India The Bihar consumes local linseed and also imports insignificant quantities from the United Provinces Central India and Rapputana are practically self-sufficient and export their surplus

Exports from the United Provinces are directed to Bengal and Bonbay and those from Bihar chiefly to Bengal The Central Provinces export to Bombay and Madras while Central India, Hyderabad and Rapputana States despateln to Bombay Imports muto the presidences of Bengal, Bombay and Madras are mainly mended for export abroad from the ports of Calcutta, Bombay and Vizagapatam respectively and to a relatively small extent for crushing by mills located at Calcutta and Bombay

INTER-CHAPTER TWO

Lanseed is mainly used, both in India and abroad for the production of oil. In the course of crushing three tons of linseed, under commercial conditions, one ton of oil and two tons of cake are obtained. The Indian production of these products amounts to over 16 million gallons of oil (67,000 tons) and 133,000 tons of cake respectively.

The amount of exports and the quantity of linseed used for internal consumption are roughly about equal but the figures in both cases are extremely variable. The largest single factor in internal consumption is the crushing by mills, and although the oil milling industry has expanded, the amount of linseed crushed shows no consistent trend up or down

The variable nature of the exports is apparently due to fluctuations in the Algentine clop Although this is the main determining factor other things have to be taken into account as, for example, the demand from the United States of America where in recent years the local erop has been usufficient to meet their own demand and appreciable quantities have had to be taken from both the Argentine and India The size of the Argentine crop largely determines the amount of premium obtainable for Indian linseed in, say, the United Kingdom market The premium is due to the fact that the quality of Indian linseed is higher than that of Argentine for example in so far as it contains 4 per cent more oil on an average It is also partially due to the fact that the price of Indian linseed is quoted on a clean basis while that of Aigentine allows for 4 per cent refraction Although the premium varies from time to time the price of Indian linseed may normally be expected to be 15 per cent higher than that of Argentine and it is observed that when the premium falls below this point exports from India are stimulated considerably and once versa

The variable nature of the internal demand is due to zarious cause' but generally to the amount of linseed oil used for the adulteration of other oils, particularly mustand. It appears from enquiries that only one third of the linseed oil produced in India is used for industrial purposes, e.g., in the manufacture of paints, varnishes, etc., and the remaining two thirds for edible purposes. In the Central Provinces and States of Central India, linseed oil is is d as such for cooking but in the other areas of Northern India it is almost entirely used as an adulterant of mustard oil, and for this purpose ground nut oil is its main competitor. The pungency of the mustard oil overcomes the comparatively bland character is the others and makes adulteration possible

When mustard oil is much dealer than linseed oil there is a strong incentive to inclease the amount of adulteration but if groundnut oil should be cheaper than linseed oil if will be used instead of the linseed. Although the practice of idulteration is in itself reprehensible it should be recognised that the elasticity which it gives to the internal demand provides a buffer in the event of any sudden contraction in the export trade, and conversely it enables India readily to meet any increased export demand which may arise

In the absence of an industrial census the figures of mill production are sadly lacking and it is therefore difficult to give piecise figures in regard to linseed utilisation in India. It would appear from enquiries however that of the two lakh tons of linseed crushed in this country about two thirds is used in large factory establishments and one third in country about.

The cake produced by *ghants* is generally consumed locally, but two thirds of that produced by the large mills finds its way into the export trade, but the proportion retained for local consumption in some areas is fairly

high For example, in an important linseed producing area like the United Provinces about 60 per cent of the cake produced in the local mills is retained for consumption within the province or in adjacent areas. The high figure in this case is probably due to the fact that in recent years several parcels of linseed cake from the United Provinces shipped to the United Kingdom have been rejected on arrival owing to the presence of castor seed busk. Exporters, therefore, tend to avoid purchasing linseed cake from the United Provinces except under special terms which are so onerous that many of the mills find it more advantageous to sell their cake locally

So far as can be observed buvers in India or abroad pay little "egard to the quality of linseed purchased by them Bold seed is crushed by mills situated in the area where this type of seed is commonly grown and Small seed in the other areas. Only one or two mills seem to make any attempt to buy on the basis of quality, and in the export market only buyers of the Umted States appear to be sufficiently discriminating to appreciate the advantage of buying Bold as compared with Small linseed There seems, therefore, a need for making a clearer commercial distinction between the types

CHAPTER III - WHOLESALE PRICES

A .- Indian prices-Official and trade

An analysis of the prices of most agricultural commodities in India is complicated by the general absence of uniform standards of quality and by the fact that official and trade prices are often at complete variance. In the case of linseed the task has been made more difficult owing to the absence of organised trading such as exists in wheat at a large number of markets in the producing areas. As organised trading in linseed under the control of producing areas toors or exchanges is carried on only at Bombay and Calcutta it has not been possible to obtain for this commodity as reliable or as wide or connected a series of price data as was available for wheat

The existing system of recording prices by the revenue authorities and their publication as ancient history long after the dates to which they refer has already been discussed in the Report on the Marketing of Wheat Briefly therefore it may be stated here that the machinery employed in the provinces is more or less the same throughout India The prices of various commodities at a number of markets are reported to the Tehsildar a subordinate officer in charge of a tehsil or sub-division of a district by the bazaar chaudhari This is an honorary appointment made by the Col lectors or Deputy Commissioners the incumbent being usually a trader by profession and as such well acquainted with market proce dure The information thus reported is then supposed to be verified by the district officer before being sent to the headquarters of the local government the departments concerned varying in different provinces In the Punjab and United Provinces for example the Director of Land Records maintains these data while in Bihar and Bombay it is the Department of Agriculture which is responsible for the consolidation of price statistics

The official prices of linseed which are published in some of the provided La ettes fortingfitly or monthly as the case may be not only differ frequently and substantially from actual trade records but in certain instances are at variance even with the prices quoted in other government publications. Compare for example the whole take prices for Lahore as reported in the Indian Trade Journal and the Punjah Government Gazette over the period of one year.

64

Wholesale prices of Lanseed at Lahore (Per maund)

Indian Trade Journal (4 per cent refraction)	Punjab Governmen Gazette (average quality)
Pa	
1	Rs A P
i •	4 11 0
6 7 6	400
6 4 0	5 0 0
6 7 6	5 0 0
6 6 6	500
6 3 0	500
5 15 0	4 7 0
5 4 0	4 9 0
1 1	470
1	4 7 0
5 8 9	4 5 0
	(4 per cent refraction) Rs A F 6 4 0 6 7 6 6 4 0 6 7 6 6 6 6 6 3 9

It will be observed that not only are the trends of the two sets of prices at complete variance but the disparities between them, even after adjusting the difference in the basis of quotation, are so wide as to be quite irreconcilable

Other instances, perhaps less glaringly divergent, may be seen in the quotations for Raipur and Nagpur (Central Provinces) as recorded by the Municipal Committee and the provincial gazette

Average wholesale prices of Linseed per mound 1931/1932

		λ	agp	ur			Raipur						
	Gas	zeti		Municipal Committee						Municipal Committee			
	Rs	À	P	Rs	A	P	Rs	A	P	Rs	A	P	
Јапиагу	4	7	9	4	5	0	3	7	8	3	3	•	
February	4	1	8	4	2	Đ	3	4	1)	3	5	3	
Mareh	4	1	5	4	1	10	3	5	0	3	8	0	
April	4	2	7	4	3	6	3	4	5	3	5	3	
May .	4	4	6	4	2	9	3	6	9	3	3	8	
Jane	4	6	11	4	3	5	3	7	11	3	4	1	
July	4	6	10	4	4	4	3	8	4	3	5	5 •	•
August	4	7	3	4	4	7	3	6	2	3	6	5	
September .	4	5	10	4	5	8	3	6	8	3	6	9	
October	4	6	6	4	5	0	3	2	2	3	4	4	
November	4	2	3	4	3	10	3	4	7	3	4		
December	4	6	5	4	3	4	3	6	9	3	4	11	

At Nagpur the maximum difference between the two series of prices in any one month during the five year period 1931/35 occurred in January 1935 and was as much as Re 0120 per maund At Baipur the widest disparity was also in January 1935 and amounted to Re 014-2 per maund The former represents a difference of over 13 per cent and the latter nearly 20 per cent Any

number of similar instances could be cited but the fee examples quoted indicate the unsatisfactory nature of the present position of price statistics. Evidence was not lacking to confirm the observations made in the Report on the Marketing of Wheat regarding the casual mainer in which many officials responsible for the collection and verification of prices undertook these duties and the fullity of these data for commercial and marketing purposes. Preference has therefore been given in this report to actual trade prices, wherever obtain able. The prices quoted by the Bombay and Bengal Chambers of Commerce or alternatively those maintained by the Marwadi Cham ber of Commerce, Bombay, and the Calcutta Wheat and Seeds Association have been taken as the best index for the prices at the two ports and for comparison of Indian and world values.

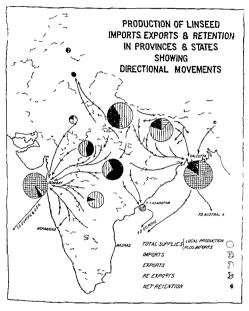
B-Comparison of Indian and world prices

For a comparison of prices in India with those ruling in other world markets it is immaterial whether the Bombay or Calcutta quotations be taken, for both markets, as will be shown in a later section, follow London and usually more closely together. Accordingly, therefore, the Bombay prices have been taken to represent Indian values in the diagram facing page 67, the other international markets illustrated being Buenos Aires, Duluhi (U S A) and London. Although the quotations are in different currences and based on different units of weight and points of delivery, it will be observed that on the whole, fluctuations show a sympathetic ten deney

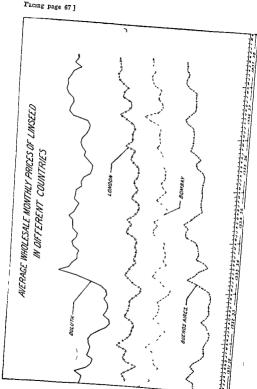
A very large proportion of the international trade in linseed and other oilseeds is handled on the Baltie Exchange in London under the terms and conditions of the Incorporated Oil Seed Association contract not only for purchases by United Kingdom buyers but by most consumers of linseed on the Continent and even, on occasions, by United States crushers. The London quotations therefore, represent the nearest approach to a "world price" and as Argentina and India are the two main linseed exporting countries, the London quotations for Plate and Indian linseed may be taken as typical of world values

The average annual prices for Argentine linseed in London together with the prices at Buenos Aires Dutth and Bombay, given in the table below, show that in common with all other agricultural products the price of linseed reacted heavily to the world economic troubles which began at the end of 1929. The two bumper crops of Argentine linseed which were harvested during the early depression years, if anything, made the general position worse and the two short crops which immediately succeeded did not improve matters

The price data for this diagram have been obtained from the International Review of Agriculture The price of linseed at Bombay recorded in this publication is based on the Bombay Chamber of Commerce quotations



 $\Lambda\,B-\!Re$ exports refer to exports of linseed out of the supplies imported into Calcutta, Bombay and Vizagapatam from the producing areas



Average annual prices of Linseed in world markets *

	Вол	nba	ıy		;	Lone	lon			Buenos Aires	Duluth (USA)
	В	old	! 		oml Bol		Plate			Current quality	No 1 Northern
	c1	per per wt	. '	Pounds Pound per per ton ton (c 1 f) (c 1 f				Cents per bushel (futures)			
	Rs	۸.	ų	£	s	D	£	8	D		
1929	11	8	0	20	13		18	5	9	18 25	276
1930	10	8	0	17	15	6	15	1	6	17 02	236
1931	6	9	0	11	10	υ	8	14	j	10 79	148
1932	6	1	i	11	9	11	8	8	ð	9 22	118
1933	6	0	6	11	5	3	9	11	11	10 57	157
1934	6	7	8	11	17	3	10	0	11	12 77	186
1935	6	10	8	12	5	2	9	12	11	12 31	172
19 6	7	6	5	13	12	4	11	6	5	14 37	191
1937	7 :	14	9	15	5	6	12	16	4	15 47	205

From the high levels of 1929 the price of Imseed started falling, farty gradually at first and then precipitately in 1931 and 1932, touching bottom at Buenes Aires during the latter year with a loss of about 50 per cent as compared with the average annual price railing in 1929

At Bombay the lowest point registered was a year later in 1933, and in this instance too the loss was roughly of the same dimensions

The greatest fall however was recorded at Duluth where the market declined by some 57 per cent between 1929 and 1932

The London quotations for Indian and Argentine Iusseed in the United Kingdom also broadly reflected the conditions obtaining in these two producing countries. The net loss between 1929 and 1933 in the case of Bombay Bold was about 45 per cent while Plate seed had already touched its lowest point a year earlier when it had fallen by approximately 54 per cent

^{*}International Review of Agriculture.

With the exception of slight recessions in the quotations for Argentine and United States linseed in 1935 there has been a general noward tendency since 1933 although in the beginning of 1938 prices are still well below the values ruling in 1929 or even 1930 In the early part of February 1938 Calcutta linseed was about £14 17 6 and Plate about £12 12 6 per ton cuf London for near shipment

Apart from the general relationship between the prices in producing and consuming countries seen from the diagram facing page 67 an examination of the parity between the prices at Bombas or Calcutta and those ruling at London will show that there exists a close degree of sympathy between the two Indian ports and London Nor mally a sound or correct selling policy can only be given effect to when Indian prices are on a parity with those simultaneously ruling at London A number of factors have to be taken into consideration in calculating this parity. The various items reckoned by shippers in India may best be illustrated by converting the Indian price at say Calcutta on any day to its cif London equivalent and com paring it with the actual price ruling there on the same day. For example the price of small linseed at Calcutta on 17th December 1937 was Rs 5 12-0 per maund and the actual cif London quota tion on that date was £15 1 3 per ton. The following calculation will show how far a parity existed between these two quotations -

Price at Calcutta on 17th December 1937 per maund 5 12 0

Add ...

Charges at Calcutta—						
	(Per n	181	and)			
	Rs .	A	P			
Muccadamage @ Re 0 6-0 per ton	0	0	3			
Removal@ Re 060 per ton	Ð	0	3			
Godown rent @ Re 0 6 0 per ton	0	0	3			
River dues @ Re I 4 0 per ton	0	0	9			
Shipping charges @ Re 080 per ton	0	0	4			
Boyers commission @ Re 180 per ton	0	0	H			
Brokerage @ 6 pies per maund	0	0	6	0	3	3
~		_			15	3
Cost f o b Calcutta per maund				-	10	

162 0 9 per ton

Equivalent one in sterling per times hange rate at 15 6d per 12 3 1

rupee)

4dd			
		Shilling per to	
Insurance @ ½ per cont		l ə	1
Suprintendence @ 6d per ton) o	Û
Fright alcutta/London @ 42s 91 (4"s 6f less per cent) per ton	1)	42 7	G
Selling brokerage @ 1 per cent		3 0	1
Interest @ 5 per cent for 21 days*		8	7

Difference between buying basis in Calc (tta (o per cent) 12 50 and selling basis in London (p irc)

Calculated price per ton c if London

£10 4 4

In this calculation no account has been taken of interest in India A considerable lapse of time may occur between pax ment for the goods in India and reimbursement at destination particularly when sales are made for shipment two three or four months ahead Shippers obtain funds in India by selling to the exchange banks sterling telegraphic transfers or bills drawn at three months sight on London and also borrow money on call t whenever rates are favourable. The rate of interest therefore depends on money market conditions.

Another important factor not taken into account in the above calculation is the gain arising out of the difference between the analysis results found in London and those obtained from the analysis of purchases in India. This is due to careful preparation of the goods for shipment a strictly controlled buying policy and the difference between the London and the local systems of calculating allowances for various impurity determinations. This gain in analysis may be as much as 2 per cent or more according to the season and other conditions and is usually discounted from the eif price when arriving at the local parity. On the other hand excessive lemency in

As per clause 3 of the Incornor tod Oil Seed Association s Contract the relevant portion of which reads "" interest at 5 per cent or at Bank of England rate if aver 5 per cent at 10 AM on the day of parment to allowed for unexpured portion of prompt of "I days from vessels report ing".

f(call loans—loans subject to recall by the lender on any day provided notice is given before a specified time—usually 1 p x Money so recalled must be repaid to be now he will be supplied to the loans the same day Interbank call money has been available no recent versus an anything between \$\frac{1}{2}\$ to per cent, while approved merchant houses have unamify been able to borrow at \$\frac{1}{2}\$ to \$\frac{1}{2}\$ per cent above those

analysing purchases would almost certainly result in a loss under this item

Excluding these two factors from the calculation given in the example quoted the actual price at London on the 17th December 1937, viz, £16 1 3 per ton, is apparently 3s 1d per ton less than the cif equivalent of the Calcutta price, based on the above proforms and to that extent business would have been impossible. The fact that there is (or should be) a gain in analysis, would enable this gap to be bridged and since the figure indicated is in the neighbourhood of 2 per cent, it will be obvious that business between Calcutta and London was practicable on or about the day in question

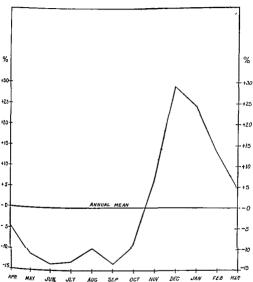
C —Relation between the prices of Indian and Plate imseed in the United Kingdom—effect on exports from India to the United Kingdom

As the United Kingdom is India's most important customer for inseed, it is necessary to examine the relation between the London prices of Indian linseed and those of her competitor, the Argentine, in order to gauge the effect on exports from this country to Great Ritton.

Fire c if piles of Calcutta lunseed and Pl ite lunseed in London are given in Appendix XVII and XVII and the difference between the two in Appendix XVIII This difference is, the premium to the Indian insect over La Plata is due to the higher oil content of Indian lines? I and the difference in the selling basis in London, which is 'pure' for Indian linesed and 4 per cent' free for Plate linesed. The highest premium attained by Calcutt Inseed over Plate linesed since 1926 occurred in December 1928 and was £4 5 Te premiums fluctuate almost from day to day and as will be shown are arely governed by the relative intrinsic values of the two qualities of linesed, but are mainly influenced by the available supplies in Arcentina and India.

The seasonal variations in the average monthly premiums for Calcutta linseed over La Plata in London are illustrated in the dia gi im facing this page. Between April and October the average premium will be found to have ranged from nearly 45 per cent to 135 per cent below the annual mean. This is to a great extent the natural outcome of the pressure of the Indian crop, the season for which commences in March and April and reaches its height during the ensuing three or four months. By October the marketable sur plus in India has dwindled considerably while about the same time the prospective new crop of Argentine linseed begins to figure largely as a market factor in consuming centres. The tendency is there fore for the margin between Indian and Argentine values to widen and this actually begins to happen in September, developing rapidly after October and reaching a peak of 29 per cent over the annual mean in December by which time the first supplies of Argentine his seed are already on the market Thereafter the premium steadily decreases, influenced in its turn by the prospects of the Indian crop

Percentage deviation of the average monthly premiums at London for Calcutta linseed over Plate from the annual mean



Facing page 71] APORIS OF LASSED NITO THE UNIED KNUDOM FROM NOM A ARCENTAM A PREMUM FOR CALCUTA LMSLED OVER PLATE LANSEED PREMIUM FOR CALCUTA LINGEE MANDERS (FROM MOIA

the bulk of which reaches maturity by the end of March On the whole, therefore, it may be saud that the seasonal variations in the price differences in London, between Indian and Argentine Imseed are caused by the crop cycles in the two producing countries. It is noteworthy that the bulk of the sales of Indian lusseed abroad are normally contracted for between May and September at a time when Indian Inseed is standing at a relatively attractive price level as compared with the Argentine product.

The average annual premiums for Indian linseed and the proportion which they bear to La Plata quotations are shown in the following table and illustrated in the diagram facing page 56

Average annual premiums for Calcutta Linseed over Plate Linseed in London

	Per ton c 1 f £ s d	Percentage to Plate price		Per ton e 1 f £ s d	Percentage to Plate price
1926 27	1 16 8	11	1932 33	1 17 6	22
1927 28	1 19 2	12	1933 34	1 4 2	12
1928 29	2 14 10	17	1934 35	1 12 11	16
1929 30	1 13 10	9	1935 36	2 1 5	20
1930 31	2 2 6	16	1936 37	1 19 6	17
1931 32	2 4 9	25	1937 38	1 17 9	15

It is interesting to observe that for the seven pre Ottawa years ending with 1932 33 when the importation of non Empire linseed into the United Kingdom was duty free Calcutta linseed averaged 16 per cent dearer than Plate linseed while in the succeeding five Fears the relation between the two qualities in London was almost precisely the same in spite of the duty. If the 10 per cent duty on Plate linseed be adjusted against the premiums, as also the difference between the selling basis for Indian and Argentine linseed in the United Kingdom it will be obvious why Indian exports to the United Kingdom have been relatively so high since 1933 34 as compared with the Argentine product For example in 1933 34 the average annual gross margin between Calcutta and Plate linseed cif London Was £1-4 2 per ton Tal ing into account the 10 per cent duty (amount ing to 19th 9d) and adjusting the 4 per cent difference in the London celling basis (amounting to about 8sh) it would appear that Calcutta linseed taling an average of the whole year was actually cheaper than Argentine linseed by 3sh 10d per ton in spite of its higher oil content During this year the landed cost of Calcutta linseed when it was at its dearest in December 1933 and January 1934 was only 88h 7d per ton higher and when relatively at its cheapst. August and September 1933 as much as £1 0 10 lower than Argen time linseed. The differences over the greater part of the year were such as to favour purchases of Indian linseed and it was not surprising, therefore, to find that imports into the United Kingdom from India rose from an average of a few thousand tons only in 1931 32 and 1932 33 to 174 000 tons in 1933 34

In 1934 35, the average annual gross premium for Calcutta lin seed advanced to £1 12 11 per ton which after adjustments in respect of the import duty and the difference in the selling basis averaged 43k 3d per ton The relative pixel etcls of Calcutta Inseed and La Plata fluctuated considerably in this year, so that while in September 1934 the landed cost of Indian linseed was lower their Plate Inseed by 20 8 10 per ton in January 1935 it was higher by as much as £1 2 11 Indian linseed could not therefore continue to find as favourable a parity throughout the year as it did in 1933 34 with the result that imports into the United Kingdom from India declined to 109 000 tons while those from Argentian increased by about 11,000 tons to 78 000 tons This increase may not appear to be of any special significance but it must be remembered that the total amount of linseed purchased by the United Kingdom in 1934 35 was much smaller than for many veers previously or since

In 1930 36 there was a large Argentine crop which competed strongly against Indian Inseed Consequently the average amust gross premium for Calcutta Inseed widened to £215 per ton equivalent to a net premium of 123h 9d after adjusting duty and the difference in the selling basis. Throughout this year the landed cost of La Plata remained lower than Indian Inseed the extreme limits being 3sh 3d per ton in March 1936 and 19sh 4d in November 1930. As a result imports into the United Kingdom from India fell to 76 000 tons while those from Argentina rose to 180 000 tons being more than double the previous year's shipments.

There was a substantial reduction in the supplies of Argentine linesed during 1936 37 which materially helped Indian linesed to find a larger market in the United Kingdom. The average gross premium for the whole vear at which Calcutta linesed stood over La Plata was £1196 per ton but this appearedth, high figure was equivalent to a net average premium of £068 per ton only after the necessary adjustments against the current value of linesed which had appreciably advanced since the previous year. The net premium ranged from as little as £0.14 per ton in June 1936 to £0.15 a in December 1936 in consequence imports unto the United Kingdom from India ross to £19 000 tons while those from the Argentine declined to 70 000 tons.

In 1937 38 the average annual gross premium which averaged 4:1 17 9 per ton works out to a net premium of £0 1 1 per ton only In June 1937, the average landed cost of Indian linseed was as much as £0.97 per ton cheaper than that of Atgentine innseed duty paid, while in Docember 1937, when the margin was at its widest, (alcutta liseed was dearer by £0.157. The relationship between the prices of Indian and Argentine Innseed in London during this period again favoured purchases of Indian Innseed for a greater part of the year, with the result that imports from India into the United Kingdom accounted to 178,000 tons and those from Argentina to 74,000 tons

The relationship seen to exist between the premiums for Indian linseed over Argentine and the volume of imports into the United Kingdom from these countries is clearly illustrated in the diagram facing page 71. It will be observed that whenever the picrium for Indian linseed in London, as typified by the quotations for Calciutta linseed rises, or in other words as the difference widens, this is followed, in most cases, after an appropriate time lag, by a diministion of imports of Indian linseed and an increase of imports of Plate linseed into the United Kingdom. The alternate rise and fall of the curves representing imports from these two countries is very striking indeed.

It will also be clear that the relative intrinsic values of the two quitines of linseed do not control their respective prices a detailed comparison between Argentine and Ind an linseed is rendered difficult by a number of opposing factors which in certain Cxtumstances may tend to offset each other in varying degroes.

The quantities of linseed available in India for export are to some extent also linked up with the internal demand for linseed oil. This has already been discussed in Chapter II in which it has been indicated that groundinate oil is one of the chief competitors of linseed oil for adulteration with the higher priced vegetable oils, eg, mustard oil. When the margin between the price of groundinat oil when the margin between the price of groundinat oil when the margin between the price of groundinate oil when the margin linear the price of groundinate oil when the price of groundinate oil when the price of groundinate oil when the price of groundinate of groundinate of the price of groundinate of g

The volume of the Indian export trade is therefore governed by a combination of two elements. On the one hand are the relative values of Indian and Argentine linseed on the London market, and on the other the internal demand for linseed as reflected by the price margins between linseed and groundnut oils. The interaction of these two factors on the Indian export trade will be gauged from the diagram facing page 76 which shows (a) the monthly variations since April 1931, in the premiums in London for Calcutta linseed over La Plata, (b) the price margins in India between groundnut and linseed oils and (c) exports from this country While the close affinity between the London premiums for Indian linseed and exports from India is particularly noticeable, the relationship borne by the price margins of groundnut and linseed oils may not appear to be so striking at a first glance The general trend of the curve however plainly indicates that this factor does have a direct bearing on the export trade

D-Price differences in respect of quality

Apart from any consideration of market conditions the price of linseed depends on (a) quality and (b) the amount of impurity content (refraction)

(1) QUALITY

As a general rule Bold and Smull innseed are not found simil taneously in the same markets in the producing areas. But at the ports and in such other markets as do receive both types of linseed Bold is always quoted at a premium over Small. At Bombay Rock example it will be found from reference to the following table based on Appendix XIV that the premium for Bombay Bold his ranged from an average of Re 0.17 per maind in 1934 35 to as much as Re 0.50 per maind in 1932 33 representing 2.1 and 7.7 per cent respectively.

Comparison between the average annual prices of Bombay Bold and Small Linseed at Bombay

(Per maund)

	Bold.		Small			Difference			Percentage premium for Bold over Small,	
	Rs	A	P	Rs	A	P	Rs	A	P	
1932 33	4	5	10	4	0	10	0	5	0	77
1933 34	4	7	7	4	5	7	0	2	o	9
1934 %	4	13	10	4	12	3	0	1	7	0.1
193 3	4	15	11	4	14	2		1	9	2 "
193 17	5	7	10	5	5	7	0	2	3	2 6
1 137 38	5	13	9	5	11	۲,	(2	1	2 1
	1	_		ļ	_			_		

At Calcutta, the differences between Bold and Small linseed between the annual average prices for the period 1932 33 to 1937 38 are as follows —

Comparison between the average annual prices of Calcutta Bold and Small Linsced at Calcutta

(Per maund)

	В	old		Sı	nal	1	Diffe	rei	rce	Percentage premium for Bold over Small
	Rs	A	P	Rs	A	P	Rs	A	P	
1932 33	4	1	2	3	15	5	0	1	9	2 7
1933 34	4	6	3	4	5	8	0	0	7	0.8
1934 35	4	12	6	4	11	8	0	0	10	1 1
1935 36	4	15	3	4	14	1	0	1	2	1 5
1936 37	5	8	10	5	8	1	. 0	0	9	0.8
1937 38	5	15	2	5	14	6	0	0	8	07

In this market Bold linseed *ie*, Calcutta Bold has been dearer than Small by between 0.7 and 2.7 per cent in 1937 35 and 1932 33, respectively.

It may be mentioned here as has been noted earlier that bombay Bold and Calcutta Bold represent two entirely different qualities of inssed. The higher premium obtained at Bombay for Bombay Bold over Small as compared to that paid at Calcutta for Calcutta Bold over Small is due to the Bold Inseed marketed at Bombay having a relatively greater oil content than Small

Another significant feature—to which fuller reference is made in Chapter VI—of these price differences is that at Calcutta any linseed which does not conform to the accepted standards for Bold (these vary from 145 to 152) is automatically valued at the price of Small Inseed At Bombav on the contrary a tender which fails to pass the Bombav Bold standard has a value applied to it somewhere between the current quotations for Bold and Smill depending on the proportion of small grains found in the lot. This system of determining the price however does not apply to consignments of linseed railed from Satha in Reva State in Central India. The linseed from this market is designated as Satha quality and generally sold at a flat discount of 6 pies per maund below Bombay Bold.

A tendency for Bold inseed to fetch consistently higher prices than Small was also observed in up country milling centres. At Cawnpore for example the average monthly price differences be tween these two qualities over 9 months in 1937 as will be seen from the following table varied from Re 0.3 3 per naund in May 1937 to Re 0.4.7 per maind in the following month. Expressed in percent ages these differences represent 418 and 5.90 per cent respectively

Comparison between the average monthly prices of Bold and Small Linseed at Caunpore

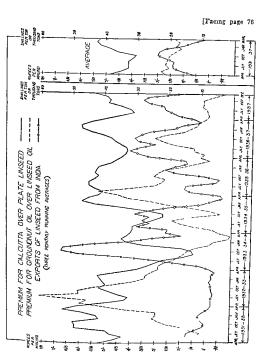
(Per maund)

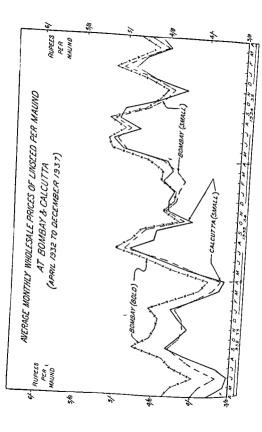
						_	_	
	Bol	đ	Sma	ıll	Diff	erej	ice	Percentage premium for Bold over Small
	Rs	A P	Rs	A P	Rs	A	P	
1937								
April	5	7 0	5	3 6	0	3	6	4 19
May	5	1 0	4 13	3 9	0	3	3	4 18
June	5	1 7	4 1:	3 0	0	4	7	5 95
July	5 (0 2	4 15	2 5	0	3	9	4 91
August	4 1:	5 0	4 13	6	0	3	6	4 63
September	4 1	4 0	4 10	3	0	3	9	5 Oa
October	4 1	5 7	4 11	7	0	4	0	5 29
November	4 1	4 0	4 10	0	0	4	0	5 40
December	4 14	1 0	4 10	0	0	4	0	5 39

In the western districts of the Central Provinces in which a small quantity of white or yellow Inseed is marketed these qualities are bought by the local mills at a premium of anything from Re 0.60 to Re 0.80 per maind over the usual Bold Inseed grown in the neighbourhood. The export trade however gives no preference to white or yellow inseed as it equantities involved are generally too small to be shipped separately.

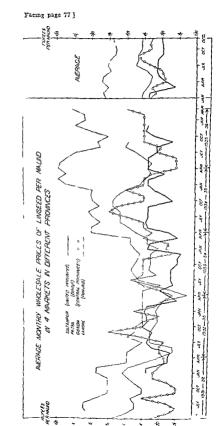
(...) IMPURITY CONTENT OF REFRACTION

Lange output markets the terms and conditions of sales and pur chases are not clearly defined and it is customary for the buyer to examine the produce and make a mental estimation as to the amount





RUPEES PER MAUNO.) b Average monthly wholesale prices of Linseed per maund at Bombay and Calcutta—cont l 30000 20 000 TONS 000 01 CALCUTTA (SMALL) 4 EXPORTS FROM CALCUTTA EXPORTS FROM BOMBAY CANAL NEW 5/8



of impurity content (and other quality factors) before making his offer Prices therefore, are subject to wide variation on account of the difference in the impurity content of the goods

It is only in "futures" contracts and in actiff deliver contracts made by exporters and mills that the prices of linseed are quoted on any definite basis of impurity content, but this also is by no means uniform. At Bombar, the basis for "futures," contracts as 4 per cent mutual while the great bulk of delivery contracts are also made on the same terms, but at Calcutta the basis is 5 per cent non mutual. Accordingly the price of linseed in Bombay is based on a 1 per cent lower impurity content than at Calcutta and is to that extent dearer, quite apart from the difference in the intrinsic values of the Bombay Bold, Calcutta Bold and Small qualities.

Again, the scales of allowances adopted by various buyers make a difference in the evaluation of impurities. For example, a lot of linseed which contained, say, 2 per cent damaged grains 3 per cent touched grains and 3 per cent of the contained, say, 2 the extent of 3.75 per cent if tendered against a Bombay trade association's contract, 2.75 per cent against a similar contract at Calcutta, 4.5 per cent if delivered to an exporter in Calcutta and 3.6 per cent if accepted by a mill in the United Provinces.

It must be obvious therefore that the prices of linseed not only in the different centres but even in the same market are bound to differ in a degree corresponding to the basis and scales of allowances applied by various classes of buyers

E-Price variations in the same market

Consignments arriving in the markets always contain varying proportions of impurities. Consequently in practically every up country market where inseed is larget sold after a rough and ready visual examination only, the price paid for different lots in the same market, on the same day, is hable to variations which may sometimes be quite considerable. Arrivals at different seasons of the year also differ as regards their impurity content and other physical characteristics e.g., the proportion of damaged grains etc. so that the prices on different dates and different months of the year even from the same source are of hittle value for detailed comparison except where full particulars are given as to the amount of refraction carried by each lot.

At the two port markets where organised trading exists and a large volume of trade is done under contracts, the dail. variations are on the whole comparatively smaller. The contract terms of various exporting houses have many points of similarity and the prices at which they are able to effect purchases differ to a small extent only. At Calcutta, for example there are often differences up to about Re O 10 per maintd between the prices pand by certain shippers on the same day. Such differences are due not so much to

[&]quot;A small trade 1º done in Barar Dhara or Barar terms on a 6 per cent mutual basis

any small variations in the contract terms as to the analysis results of the firms concerned. The firm whose analysis is relatively lemies would naturally be given preference by sellers and would to that extent be able to purchase more cheaply than a buver whose deductions were known to be higher on account of greater severity in making these determinations.

The prices paid by different mills in the same market are also liable to vary cometimes quite considerably as will be seen from the following table giving the average monthly prices paid in a few months taken at random by two mills at Calcuita. The average monthly quotations ruling at Calcuita, are also given to facilitate comparison.

Average monthly prices paid for Linseed by tuo nilis at Colcutta

ret mand)										
Mill 4	мы в	Average monthly price of Small inseed at Calcutta *								
Rs A P	Rs a P	Rs A P								
3 12 3	3 15 0	3 12 10								
4 6 3	4 5 6	4 5 8								
4 2 11	3 13 9	4 1 6								
4 2 9	3 15 0	4 1 5								
5 3 1	5 3 3	5 2 1								
4 10 4	4 9 0	4 10 6								
	Mill 4 Rs A P 3 12 3 4 6 3 4 2 11 4 2 9 5 3 1	Mall A Mall B Rs A F Rs A F 3 12 3 3 15 0 4 6 3 4 5 6 4 2 11 3 13 0 4 2 9 3 15 0 5 3 1 5 3 3								

Allowing for the effect of changing market conditions during the month—obviously the two mills did not make their our chases on simultaneous occa ions—some part of the above disparities may be accounted for by the dissimilarity in the contrect terms

Again the prices paid by certain mills show some variations as compared with the prices recorded by the trade associations. These would repeat to be due in some measure to the range of daily fluctuations. In the following table are quoted the actual rates at which a large oil mill in Calcutta bought lineed on certain specific date taken at random and the prices recorded by the Calcutta Wheat and Speeds Association on the same dars.

¹⁷ ribneqqA*

Prices of Linseed paid by a mill and as recorded by a trading association on certain dates at Calcutta

(Per maund)

Date	Actual prices paid by an oil mill	Prices recorded by the Calcutta Wheat and Seed Association				
	Rs a P	Rs A P				
9th May 1931	4 3 6	4 4 6				
5th September 1931	3 12 6	4 1 °				
12th March 1932	4 4 6	4 4 6				
5th November 1932	4 1 0	4 1 0				
3rd December 1932	4 2 6	4 2 0				
18th February 1933	4 0 0	3 14 0				
10th June 1933	4 8 6	4 12 0				
7th October 1933	4 2 0	4 2 3				
17th March 1934	4 6 6	4 6 6				
14th July 1934	4 12 0	4 12 3				
4th August 1934	5 1 0	5 9 0				

It was observed that the daily variation in prices is normally within a range of about Re 0.10 per maund. Occasionally when every dull conditions prevail prices hardly fluctuate at all. On the other hand during heetic periods of trading which occur at infrequent intervals the market may move Re 0.30 or Re 0.40 per maund in a day, or even more

F-Comparison of prices in different markets

The average monthly prices of linseed at Bombay and Calcutta on 4 per cent and 5 per cent basis respectively, given in Appendices XIV and XV are illustrated in the diagrams on the backs of the plates facing pages 76 and 77. It will be seen that the tiends show a marked degree of sympathy in both these markets. The price of Bombay Bold, which is always higher than the price of Small at Bombay, is normally at a higher level as compared with Small at Calcutta also. At times however the relative positions are reversed and Calcutta Small—in spite of its intrinsic inferiority—becomes the dearer quality for short periods as for example from April to June 1934. One instance, however, in which Calcutta line.

seed continued to be relatively dearer for a considerable number of months occurred from September 1936 This was to some extent months occurred from September 1300 1115 was to some calculations as a sound of some calculations from a shortage of stocks in the Calcutta hinterland and also by the fact that the Calcutta conference rates of treight* were at times lower than those from Bombay The factors which contributed to the shortage in stocks were (a) large exports from Calcutt, (b) the comparatively lower production in Bengal and Bihar and (c) the larger milling demand at Calcutta, which on occasions exerts a predominating influence on the price level at that port As larger quantities of linseed of are used in Bengal, Bihar and the United Provinces for adulteration than in any other province the relative place differences of competing regetable oils stimulate or restrict the enquiry for linseed oil for this purpose and consequently has a direct bearing on the cost of insect

All these factors combined to place Bombas linseed on a more competitive footing than Calcutta linseed in foreign markets which resulted in Bombay taking a larger share of the export trade than Calcutta particularly during a large part of 1936 37 It will be seen from the diagram on back of the plate facing page 77 that the widening of the difference is generally followed by a rist in Bombay's experts with a corresponding decline at Calcutta

The relation which the prices of Bombay Bold, and Small at Bombay and Small linseed at Calcutta have borne to one another during the past 6 years may be seen at a glance in the following table based on Appendices XIV and XV

Average annual prices of Linseed at Bombay and Calcutta (Per maund)

	(rer maund)		
	At I Basis 4	At Calcutts Basis 5% non mutual	
	Bombay Bold	Small	Small
1932 33	Rs A P	Rs A P	Rs A P
1933 34	4 5 10	4 0 10	3 15 5
1934 35	477	4 5 7	4 5 8
1935 36	4 13 10	4 12 3	4 11 8
1936 37	4 15 11	4 14 2	4 14 1
1937 38	5 7 10	5 5 7	5 8 1
Apart from the ports the	5 13 9	511 8	5 14 6

Apart from the ports there appears to be very little sympathy in the price fluctuations as between up country markets and even at

Facug page 81] PL YES METHOE MONTHY WALLOULE FRIESS OF LASSED PER MAUNO. OULCUTA BHARP SHARP F -- 0-PATHA SULTAMBUR NUMPES NET ANUNO STATE

times between the feeder areas and the ports themselves. For example the diagrum facing page 77 shows the monoment of prices at 4 markets selected at random in different parts of the country These are Sultanpur (United Provinces). Patna (Bihar), Gondia (Central Provinces) and Lahore (Punjab). All except Lahore are in the heart of large producing areas while at Patna there is al.o a milling industry of some importance. It will be observed that there is very little concordance of movement while in some cases prices follor dynactrically opposite tendencies. Part at any rate of these divergencies may possibly be due to the questionable reliability of some of the quotations which have had to be adopted for want of other statistics. Vevertheless the variations are sufficiently strilling in themselves to make it certain that they are primarily created by lack of co-ordination between the markets.

The diagram frong page 80 shows the relation-hip between Bombay and the three marlets of Banda (United Provinces), Gonda (Central Provinces) and Aurangabad (Hyderabad). With the exception of Gondia where prices show some degree of sympathy with Bombay values the other markets do not appear to respond closely to fluctuations at Bombay, or conversely it may be said that Bombay does not reflect the prices ruling up country as faithfully as might be expected.

Normally prices at origin might be expected to equal the prices at destination, allowing for transportation costs and other meidental expenses but this generally is by no means true of the linseed trade This is already clearly indicated in the diagram to which r ference has Just been made and it will also be obvious from the diagram facing this page, which shows the relationship between Calcutta ind the I rices at three markets-Bihar Sharif and Patna (Biha-) Sultanpur (United Provinces)-in the areas feeding that port pince spreads between the assembling markets and the ports are constantly changing and in some markets such as Paina where there is an important milling industry such variations appear sometimes to be very wide For example, while it normally costs Re 0 12 0 per maund to send linseed from Patna to Calcutta including the value of the bag and all market expenses at Patna the price spread between Patna and Calcutta over an average of 5 years ranged from Re 0 4 6 to Pe 0 13 0 per maund At Banda over a similar period, the price spread varied from Re 0 10 9 to Re 1 2 9 per maund whereas the Thenses at Banda and the cost of railing linseed to Bombay are about Re 106 At Bihar Sharif the price spread ranged from Re 0103 to Re 1 per maund and the cost of delivering linseed in Calcutta Re 0 11 6 per maund

It will be observed that in many instances an ample margin exists between the port and up country prices after allowing for all intermediate charges, and it was found that these margins were on the whole greater than in the wheat trade, which by comparison is on a far better organised basis in a number of up-country markets

G —Seasonal variations.

The position in the major producing areas and at the ports in respect of the monthly deviations from the annual mean wholesale prices is given below and is illustrated in the diagrams facing pages 82 to 84

(1) UNITED PROVINCES

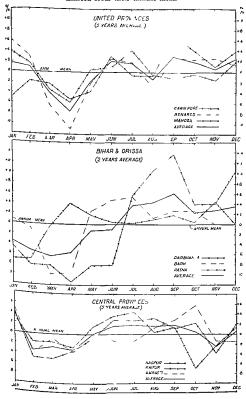
Of the three markets which have been selected as representative of conditions in this province Cawipore and Benares normally follow Calcutta, and Mahoba, on account of its situation in the south of the province, follows Bombay From the diagram opposite this page it will be seen that prices have a pronounced downward trend during the harvest months of Pebruary March and April, the low point in all three instances occurring in April The maximum fall is at Benares and amounts to 11 per cent below the annual mean At Campore, an important milling centre, where there is usually fairly constant demand the decline is only about 6 per cent and June the price level rises but fulls again in July and August except at Camppore where the tendency is for the rise to continue throughout July Values appreciate in September probably as a result of a certain amount of short covering against sales of September option made earlier in the season at the port terminals of Bombay and Calcutta The behaviour of the price level at Camppore is how somewhat different during August and September, and it would appear that the local milling demand is largely respon sible for the comparatively small finetuations which occur from August onwards and for the fact that the extreme range of varia tion at Campore is just over 10 per cent -a good deal less than in the other two markets

Taking the province as a whole the price level is highest in September and lowest in April

(2) BIHAR AND ORISSA

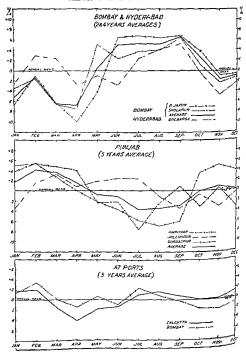
The seasonal variations in this area are more accentiated than in the United Provinces the extreme range being over 25 per cent and occurring at Patia. As in the adjacent prounce the usual harvest decline is a pioniment feature at two myrkets—Barh and Patia. At Darbhanga however it will be seen from the diagram that the level rises sharply between February and April. This is difficult to account for and may possibly be due to maccuracies in the data on which this graph has been based. It will also be observed that there is little sympathy of movement in the seasonal variation shown by the three markets in question. The lowest point toucked during the year occurs in January in the case of Darbhanga in March at Barh and in April at Patia. The price level is highest at Putian September while at Barh this point is reached in July and at Darbhanga during November. An average for the three markets however discloses a more or less similar position as in the United Provinces namely, the low boint for the season occurring in March and the high im September.

Percentage deviation of the average monthly wholesale prices of Linseed from their annual mean



Facing page 83]

Percentage deviation of the average monthly wholesale prices of
Linseed from their annual mean



(3) Central Provinces.

The seasonal variations in this province present certain common features with those of the United Provinces and Bihar mainly in respect of the harvest decline and the post-harvest rise The latter how ever is not as pronounced as in the areas already referred to harvest fall is sharply accentuated between January and February and roughly coincides with the earlier movement of the crop in these parts Between February and March the average variation is negli gible although it is noteworthy that while at Amraoti the level rises by some 3 per cent, it is practically stationary at Raipur and slightly lower at Nagpur In April prices tend to converge and in all three cases are roughly 3 per cent below the annual mean Thereafter the level tends to rise but with, however, comparatively little similarity of movement From April to July, Raipur and Nagpur move together leaving Amraoti to follow a slightly different trend after May From July to November Raipur takes a course quite at variance with the other two markets and it will be seen that Nagpur and Amraoti are now more in sympathy The fact that the internal demand for linseed oil for edible purposes is an important and fairly constant factor in the Central Provinces, is probably responsible for the relatively stable seasonal price level. The maximum variation amounts to over 11 per cent and occurs at Raipur between July and October

(4) BOMBAY AND HYDERABAD

As will be seen from the diagram, the price level, contrary to the tendency in all the other main producing areas rises between Janu ary and February Thereafter the harvest fall is well in evidence at Bijapur and Sholapur in Bombay and Gulbarga in the Nizam's Territories, in each case the low point being touched in April post harvest rise is also reproduced in these tracts but there is some dissimilarity in the fluctuations of individual markets after May before reaching the peak in September After September there is a sharp fall the downward trend being arrested in November with a slight recovery thereafter Bijapur records the maximum range of variation of nearly 17 per cent in the 6 months between April and September

(5) PUNJAB

In this province the production and consumption of linseed are comparatively insignificant compared with the other areas and the crop matures considerably later There is little or no industrial demand for linseed nor is there any direct relationship with the port terminals since the local production is too small to figure in the ex port trade Discounting the questionable accuracy of the official records it is not surprising to find the seasonal variations very differ ent from those of the other provinces as well as showing considerable bregularity of trend in individual markets Prices reach their highest in February at Amritsar and Gurdaspur and in March at Jullundur In the first two markets prices decline more or less con

finuously until the lowest point of the year is reached in July at

Amrisar and in August at Gurdaspur At Juliundur the level falls between March and April, rises slowly but steadily through May and June, remains unchanged in July and then declines sharply to its lowest point in September Prom August all similarity of more ment ends and the level of each market takes it own course For the province as a whole prices are at their highest in February and lowest in July and August This is in complete contrast to the other areas of production The extreme range of variation is nearly 125 per cent and occurs at Gurdaspur

(6) AT THE PORTS-BOMBAY AND CALCUTTA

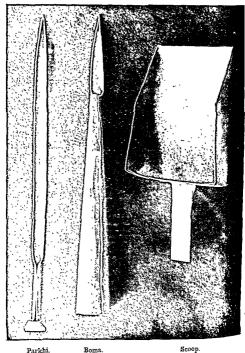
As might be expected, the seasonal variations at these two term markets show considerable sympathy (see diagram opposite page 83). In only two months is there a dissimilar trend of any magnitude, namely, between May and June and July and August At Bombay the price level tends to drop while at Calcutta it rises. This is largely due, in the first instance to a relatively heavier full which occurred at Bombay between May and June in 1935 and in the second, to an even greater decline in the same market between July and August 1931. The harvest fall—much the same as in the pro ducing areas—will be observed as also the post harvest rise which reaches its height in July at Bombay and August at Calcutta. Therefire the tendency is for the level to fall until November when prices harden again. The extreme seasonal range of variation averages 625 per cent at Calcutta and only 5 25 per cent at Bombay.

(7) SUMMARY

The seasonal variation from the annual mean in the prices of linseed do not show quite the same concordance of movement as for example is the case with wheat. This is probably largely due to the absence of the stabilising influence of organised trading in up The only exchanges in which linseed 'futures' country markets can be bought or sold are at Calcutta and Bombay and there are no similar facilities for hedging in the interior The significant teatures revealed by the diagrams opposite this page are (a) the deep trough which is formed between February and June with its low point about April (b) the somewhat discordant fluctuations between May and September, mostly tending towards a rise in the latter month (c) the almost general fall from September to Novem ber, and (d) the subsequent recovery in December The pronounced fall between February and April is due to selling pressure arising out of heavy arrivals of new crop The indebtedness of the cultivator and the necessity to repay earlier borrowing the collection of land revenue and the lack of adequate storage facilities all tend to weaken the holding power of the grower-and contribute, in varying degrees towards the general harvest depression. During the mon soon months and after May the export demand seems to be largely responsible for the general rising of the price level until September The movement of the crop up country is also affected by the rains and the deterioration of rural communications to some extent helps to hold supplies off the markets With the release of stocks which

Percentage deviation of the average monthly wholesale prices of Linseed from their annual mean

Facing page 85.1 Different appliances used for drawing samples.



Parkhi, Boma. have been previously hedged against the September option, prices once again tend to weaken and continue downwards until Novem ber, after which there is a short recovery until December In view of the intimate relationship which exists between groundnut and inseed oils for the purpose of adulteration with the dearer vegetable oils such as mustard, it is more than probable that the influence of the new groundnut crop which begins to appear on the market in November contributes to some extent to the weakness in linised prices after September Another factor which affects prices after September is the prospects of the Argentine crop Shipments from that country to Europe and United States, also react on Indian values from December onwards

The heavy fall in prices—in one instance as much as 25 per cent —during the months immediately following the harrest most seriously affects the grower's return on his produce for it is during this period that the bulk of the crop leaves his hands and comes on to the market. It is also significant that the decline between the market in the significant that the decline between which the cultivatior disposes of any surplus left over after his sowing requirements for the next crop have been filled. It seems clear that if demand and supply could be brought into closer relationship, particularly during the post harvest months, the heavy seasonal drow would be minimised and the cultivator would obtain more for his produce even after allowing for carrying charges such as storage expenses and interest on advances borrowed on the security of the crop

The particularly noticeable fall in the price level in Western India as typified by the Bombay and Hyderabad quotations, to which reference has been made would appear to be caused by the small milling demand for linseed which at present exists in those parts This tendency could probably be largely corrected were markets to be developed for Indian manufactured linseed oil in the countries adja cent to the western seaboard of India eg, East Africa It is true that much of the linseed oil manufactured in this country has, in the past been open to criticism on account of inconsistency in quality But this is not so much the case at the present time for samples of linseed oil produced by reputable manufacturers have on analysis shown excellent results and would appear to be fully equal to the best of the imported brands In respect of quality therefore the attainment of this object should not be impossible and Indian linseed cil ought to be able to compete on level terms with other brands of imported oils The question seems worthy of serious consideration by Indian manufacturers

H —Comparison of "futures" prices

Trading in linseed "futures" takes place only at Calcutta and Bombay under the auspices of five associations of which two function at Calcutta and three at Bombay The bulk of such trading is however handled by only two associations—the Calcutta Wheat and Seeds Association and the Marwadi Chamber of Commerce, Bombay

^{*}A detailed reference to these associations will be found in Chapter IX.

Two delivery months only are traded in, viz, May and September and the dates on which the two positions are opened for trading are fixed by the Committees of the institutions concerned and vary slightly as between Calcutta and Bombay and also in different years. Trading in the September option is opened about the time the lanced crop is ready up country, which is generally about the end of March at Calcutta, and im February, or in some years, even towards the end of January in Bombay. Trading in the May option begins in June of the previous year. It will be observed therefore that trading in the September option is open for about 6 months of the year while that for May for about 11 months.

The September futures 'quotations as will be shown later are hased largely on the costs of storage and are concerned mainly with the grop immediately available. Being closely related to ready values the September option is also influenced by world conditions in gene ral by weather conditions in India, by the final estimate of the Indian linseed crop published early in June as well as by the news received from time to time concerning the Argentine crop sowings between June and August The May option which reflects the anti cipated prices for the next Indian crop is governed by somewhat different factors As trading starts before the crop in question has even been sown greater speculative tendencies are involved values not only for linseed but also for other oilseeds and vegetable oils contribute largely in determining whether the price level for the distant positions are to be higher or lower than that ruling for the current crop International elements of which the chief factors are (a) the supplies available from Argentina and (b) the demand in Europe and the United States exercise a predominating influence in determining the course of May option prices in India parti-cularly during the earlier months of its currency. It is only many months after the opening of trading in this option that the prospects of the Indian crop and the forecasts published in January and March assert any influence on this position

The monthly average of the weekly closing "futures" prices for the May and September options together with the corresponding ready prices at Calcutta and Bombay are illustrated in the diagrams faning pages 88 and 89 It will be seen that on the whole "futures" prices are in close sympathy with ready prices "Futures" prices being generally higher than the ready values have a stabilising effect on the price level in general and thus appear to be advantageous. This is particularly marked in the relationship between ready and September values during the currency of this option.

The number of occasions in different years, on which the weeld closing "futures" prices were at a premium or discount as compared to ready or spot values at Calcutta and Bombay are shown in Appendices XIX and XX It will be observed that it Bomory during the last seven seasons the Mar option was higher than the ready quotations on 272 occasions and lower on 59 where's the September option prices were higher on 220 occasions and lowe or

5 only During the same period at Calcutta the May option was lagler than ready prices on 184 occasions and lower on 115 white September was dearer 164 times and cheaper 10 times. Thus it will be seen that while the September "futures" was lower than spot values on a very few occasions only, the May option was lower once in six times at Bombay and more than double that proportion at Calcutta

It is not easy to account for the different market view taken by Calcutta operators which is responsible for the greater number of occasions on which the May "futures" is at a discount below ready at Calcutta as compared with Bombay. It is true that the Inseed crops in the areas feeding Calcutta and Bombay are not subject to the same seasonal influence and that the retention of linseed in the Calcutta binterland is liable to greater variation than in Central and Western India. This is due to the close relationship existing in the former areas between linseed and other oilseeds arising out of the interchangeability of their oils for edible purposes. These factors in themselves however could hardly account to the full for the bearish tendency in the May futures at Calcutta. It seems only reasonable to conclude that the speculative element is somewhat more in evidence at Calcutta than at Bombay and plays a relatively larger part in bringing about these conditions.

It would appear therefore that the opening of trading in the May option long before the crop is even sown in India or any definite mtelligence is available in respect of the forthcoming Argentine produced series no useful purpose in regard to the prices of the current season's crop in India. Trading in the May position during the early months is therefore much more of a speculative counter than a stabilising influence. Its effect might be avoided or at least partially eliminated were trading in May to be opened later. This is a matter for consideration by the trade

Another form of "futures" transactions the object of which is almost entirely speculative and in which there is no intention what ever of giving and receiving deliver; is what is known is Tep: Wandit or "put" and "call" options. This type of transaction is prevaient in a number of markets for commodities in which "futures" trading is conducted and may be carried on either under the auspices of an organised association or conducted as between brokers and their clients outside the jurisdiction of the association. While it is true that these "put" and "call" options are indulged in by large concerns for the legitimate purposes of trade, there is ample evidence to point to the fact that a considerable proportion of the volume of Tep: Mandi transactions is undertaken by a vast body of ill informed amateur speculators many of whom are not even directly concerned with the commodit in which they are operating

When a Ten option has been bought should the prices on the delivery date exceed the price ruling at the time the contract was

^{&#}x27;Tep-Lit dearness ve a "bull" option or option to buy Mandi-Lit cheapness ve, "bear" option or option to sell Tep Mandi-a double option, ve to buy or sell

made, plus the premium, the buyer exercises his option to buy at the contract price and makes a profit equal to the difference between the price ruling on the delivery date and the contract rate plus the premium if on the contrary prices fall the speculator's less immited to the amount of the premium which he has paid as see naturally would not exercise his option to buy. Conversely when a fall in prices is anticipated a Mandi transaction is made. Again, if it is considered that values are likely to fluctuate heavily and the trend is uncertain a Tep. Vandi or double option contract is effected in which the payment of a double premium entitles the operator to buy or sell as sonditions may warrant on the delivery date.

I —Market Intelligence

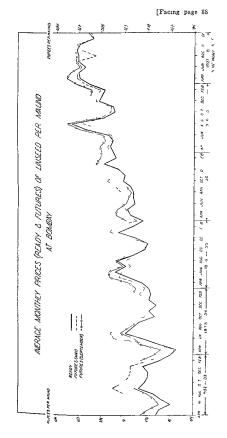
It has been mentioned earlier that a regular and reliable series of price records are available only for Calcutta and Bombay where the daily opening and closing rates both for ready and forward post tions are posted up in the trading rings of some of the trade associa These and the intermediate fluctuations are constantly being telephoned by brokers to their various clients or employers or con veyed by personal calls The latter in their turn telegraph tele phone or communicate by post with their branches or constituents in other markets The larger commission agents in the up-country markets who have connections at the ports keep their correspondents in the smaller assembling centres posted with marl et news mainly by postcard and letter and occasionally by telegram if the warrants From this point however the dissemination of information rapidly deteriorates and the written word is replaced by verbal communication only

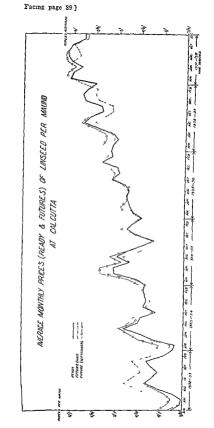
Normally the cultivator gets his market news from such neighbours as may have lately visited a market or from the village merchant or a passing itinerant trader. It must be obvious therefore that such market intelligence as eventually filters through to the producer is not always intelligible because of the diversity of customary allowances units of quotation and weights and measures. The discordant trends in the prices of linseed in the different markets and the wide price spreads which so frequently exist between the prices obtained by the producer and those paid by the consumer go to indicate that market intelligence leaves much to be desired. If the producer is to get better prices for the fruits of his Jahour it is of the utmost importance that he should receive more adequate quicker and more intelligible information in this respect.

The channels through which market intelligence is conveved to the general public may be summarised as follows --

(1) DAILY NEWSPAPERS

The daily London quotations for Indian and Argentine linsed as well as the prices ruling at Indian ports together with general re marks on market trends are included in the commercial columns of some of the more important English 'dailes' Prices for a few other





markets, for example, Delhi, Cawnpore, Indore, etc., are also quoted in some of the local papers published both in English and in the vernaculars

In addition to price data the daily press also publishes abstracts from the official forecasts of various Indian staples. The forecasts are issued at specific intervals by the Director General of Commer call Intelligence and Statistics, Calcutta, and are based on primary material furnished by the provincial authorities—in most cases the revenue and agricultural departments. From time to time information obtained from international news agencies, such as Reuters are published concerning the linseed crops in the Argentine and the United States and the world position.

(2) TRADE PRESS

Quotations and short market reports regarding the prices at the ports are also published in the trade press typical examples of which are the weeklies, Capital' and 'Commerce' Such reports are obtained from rehable correspondents who are usually merchants or brokers actually trading in the commodities discussed In addition to the trade press, institutions such as the Bengal and Bombay Chambers of Commerce, publish weekly reports for circulation to members, various government departments and in certain cases to private subs These reports include price quotations for a number of commodities rates of sea freight, the prices of government securities, exchange rates for demand drafts and telegraphic transfers and all matters of general commercial interest. They also furnish details of inward and outward traffic Private agencies and firms also issue periodical market reports and quotations. In some cases these are compiled expressly for sale and in others they are issued free of charge to clients For example a certain concern in Calcutta specialises in the compilation for sale to subscribers of import and export statistics relating to the several commodities handled at that port As the in formation is expeditiously available and conveniently drawn up in a consolidated printed sheet giving the names of shippers and the extent of each individual firm's shipments with destinations, the commercial community particularly exporters find it useful to subscribe to a ser vice of this nature rather than wait for two or three months for the emergence of the official publications concerned, or in the alternative, maintain special staff at the Customs House

(3) GOVERNMENT PUBLICATIONS

Possibly the most important of these from the practical viewpoint, and the one which usually reaches the general public sconer than any other official publication is the Indian Trade Journal, published weekly, by the Director General of Commercial Intelligence and Statistics at Calcutta This journal quotes the Calcutta and Bombay markets and also receipts at and exports from Calcutta Bombay and Vizagapatam Price quotations are obtained from the Chambers of Commerce, and trade movements from railways and the customs department Com paratively recently a new feature has been instituted in which a brief market report on linseed is given together with quotations for Argen-

tine linseed and linseed oil at London Data for this are obtained from a weekly cable from the High Commissioner for India London ad dressed to the Agricultural Marketing Adviser and distributed from his office An estimation of stocks at Bombay Calcutta and up country markets is also given based on trade reports while stocks of linseed in Hyderabad State are specially communicated by the State authorities

Three all India forecasts concerning the linseed crop are issued annually from the office of the Director General of Commercial in telligence and Statistics at Calcutta These are published in the Indian Trade Journal immediately after issue. The first forecast appears about 1st January the second about 1st June

The Imperial Council of Agricultural Research issues a weelly countered research and state of the theorem and Statistics and meluding information received from a special correspondent in Argentina and a specially cabled report on market conditions in London. The circular contains, in concise form statistics relating to the prices and trade movements of inseed and linseed oil as well as a report on market conditions at thurth Bombay and London.

Since October 1936 a weelly market report dealing with wheat intesed and rece is broadcast from Deltin every Sunday evening both in English and in the vernacular. This report is furnished in the office of the Agricultural Marl eting Adviser and is based on data supplied by Chambers of Commerce and other trade associations at a number of important centres and represents the latest available in ormation up to the close of trading on Saturday. The contents of the weekly cable from the High Commissioner for Indivi Dondon which is received on Saturdays by the Agricultural Marl eting Adviser are also included in this weekly broadcast report. The text of this cable is subsequently passed on to the Imperial Council of Agricultural Research for the weekly circular previously referred to and to the Director General of Commercial Intelligence and Statistics at Calcutta for incorporation in the next issue of the Indian Trade Journal

The provincial gazettes of a number of provinces also publish the present of binseed for certum markets fortinghtly or monthly. These data might be of some academical interest were the quotations rehable but this does not appear to be so in the majority of instances. It has already been shown that the official price quotations are often at complete variance with trade records and are accordingly of hitle value as a contemporary record.

(4) Post Tejegraph and Tejeprones

When arhatiyas or commission agents use the post the most popular medium of communication on account of its cheapness is the post card. A nuller of these firms have printed post cards grung the names of the various commodities with appropriate blank spaces.

for the filling in of quotations. These are entered up from time to time and posted to their correspondents. It is common to include from time to time general observations on the tone of the market. Telegrams are used when quick transmission of news is desired as for example when asking for or giving mistructions to buy or sell. The use of the tele phone has greatly increased in recent years and the number of trunk extensions which have lately been put into operation testifies to the growing popularity of this medium of communication.

Codes private or otherwise are not in general use by indigenous concerns but are indispensable to shippers with foreign connections and are in constant daily use

(5) Radio

The use of this comparatively new medium for the dissemination of market intelligence is of very recent origin in India. Originally receiving sets were bought for recreation and amisement but its potentialities having been realised an increasingly large section of the trade is now finding it profitable to listen in to the various commercial reports which are now being broadcast from Calcutta Bombay and Delhi

At present market information percolates slowly to the rural areas Attempts are therefore being made to provide villages with receiving sets and to cater for the needs of the cultivator as part of rural development programmes. The recent installation of new short wave transmitting apparatus at Delhi Bombay and Calcuita will doubtless enable these benefits to be enjoyed over a far wider area than was intherto possible with the original medium wave equipment and there is reason to anticipate that in due course the facilities now offered will be availed of to an increasing extent.

The weekly report on wheat Inseed and rice which is being broadcast from the Delhi station every Sunday has already been referred to A daily service in respect of ready and futures prices of wheat and other food gruins at Hapur has also been running for several months. The closing rates at Hapur an important market in the west of the United Provinces are telephoned every evening to the office of the Agricultural Marketing Adviser whence they are forward ed to All India Radio for incursion in the same evening s rural programme

(6) GENERAL

From what has already been said it will be obvious that prices are not strictly comparable under present conditions. For example at Bombay linseed is quoted on the basis of the hundred weight (112 lb) while at Calcutta quotations are per maund of 80 °17 lb. In the latter market the local contract terms are non permit a free tolerance of foreign matter to the extent of 5 per cent. The Bombay contract on the other hand is mutual the basis being 4 per cent. Again price quotations at Calcutta and Bombay are inclusive of new bags whereas those in up country markets do not include the bags. It is essential therefore that for

a proper comparison of prices the basis for quotations should be the same. Negotiations between the Central Marketing Staff and the trade as regards the adoption of an all India standard contract for linseed have reached an advanced stage, and the proposed terms have already received the approval of representatives of the interests concerned (see Chapter VI)

A suitable system for the maintenance of up to date price statistics has been very roughly outlined in the Report on the Marketing of Wheat. The proposal made was that the provincial marketing staff should be made responsible for collecting and verifying the accuracy of prices at local markets and for seeing that the rates particularly the closing ones, are posted up so that the cultivators could see how the market closed the previous day. The central office would be the focal point for reports sent in by telegram and letter for one or two of the largest markets in each province and from the local headquarters of the provincial marketing staff if this happened to be located in an important commercial centre, and would arrange to issue periodical buildings to be monadeast.

It is most desirable that the fullest use be made of the existing marketing organisation which is in the best possible position to remedy the deficiencies which at present exist in regard to the main tenance and dissemination of trustworthy market information. There should also be closer to ordination between rural development work and the facilities which are now available to custure the provision of really up to date accurate and reliable price data and their rapid and widespread transmission to the produces.

INTER-CHAPTER THREE

The quotations given for certain markets in the local government gazettes differ from those quoted for the same market in Government of India publications, and in the same province the figures given in the Government Gizette differ from those published by the Municipality by as much as 20 per cent or Re 0 14 0 per maund Such quotations are of no value in marketing

The figures put out by the trade associations are much more reliable. It is unfortunate however that so far as linseed is concerned there are only two centres for which a reliable series of prices is available namely, in Bombay and Calcutta where the Chambers of Commerce publish regular prices based on the reports obtained directly from the trade. A random check showed that the actual buying prices of a Calcutta mill over a series of years varied from the figures of the trade association by Re 0.10 per maund more or less, which compares favourably with the difference found to exist between Mullicipal and Government gazette figures as already referred to

The trade prices at Bombay may be taken as refering to Bold seed and those at Calcutta to Small, and the price series in each case may be taken as a useful basis for the study of Indian prices and for comparison with prices abroad In general Indian prices follow the course of prices for linseed in other important international markets, eg, Buenos Aires, Duluth (USA) and London As the United Kingdom is the largest buyer of both Indian and Plate linseed the prices on the London market may be taken as typical of world prices There, Indian linseed is fairly regularly quoted at a premium over Argentine which in some years has averaged as low as 9 per cent and in others as much as 25 per cent It is observed that shipments from India react very closely to the amount of the premium When the pre mium is low, exports are high and vice versa

Apart from the higher oil content of Indian linseed and the fact that its price is quoted on a clean basis. whereas 4 per cent, retraction is allowed in Argentine linseed, several other conflicting circumstances affect the amount of the premium obtainable, and in making a companison of the prices of Indian and Argentine linseed in London all the factors must be taken into account Certain crushers of high grade oils, for example, regu larly pay a premium on Indian linseed but this may be offset at times by piessure to sell on the part of India and also by the somewhat variable efforts of the Argentine to peg prices The operation of the Ottawa preference should tend to maintain the premium on Indian linseed at a figure commensurate with the difference in intrinsic value, but this is offset to some extent by the effect of the drawback granted on linseed oil exported from the United Kingdom The rate of the drawback has been modified from time to time in view of the current values of linseed, being, for example 30 sh u 1933 and 60 sh from November 1934

So far as quality is concerned Bold seed generally commands a premium over Small at the port markets, though they are seldom however found quoted separate, in apcountry markets. The premium on Bold o et Small is only about 21 per cent in Bombay and about half that amount in Calcutta This does not appear to be adequate in view of the much higher oil content of the Boid seed and the position becomes still more anomalous when, as semetimes happens, Bombay Bold is sold at a price lower than Calcutta Small The disadvantageous selling price of Bold seed in Bombay may be accounted for by the fact that in Calcutta and in the regions serving Calcutta, the milling of linseed is an industry of some importance and tends to give stability by lessening the dependence of prices on the export trade This factor also exercises a stabilising effect on the seasonal fluctuation

in prices — For example, in the Central Provinces where a steady local demand for linseed oil for edible purposes is met by a large number of small ghants the maximum variation in the course of the season is only about 11 per cent, and in the United Provinces at Cawipore where there is an important milling industry, the seasonal variation is just over 10 per cent, but in Bihar and Olissa where the local crushing industry is relatively unimportant, the rise in prices from harvest time—April to September—amounts to 25 per cent, and in Bijapur in Bombay in the course of six months between April and September, the price increases by about 17 per cent

Where a producing district is dependent on the export market only, there is, as a rule, a tendency for the seasonal harvest depression to be greater than in those areas where the local milling industry exists. In the interests of growers in those areas, therefore, there seems a need for establishing some system of organised marketing to prevent supplies being rushed on the market, or alternatively for the development of a local crushing industry.

Comparison of prices in different markets is somewhat difficult under present conditions For example the amount of refraction allowed in Bombay is 4 per cent (mutual) and in Calcutta 5 per cent (non mutual). Quitations are made on the basis of the hundredweight (112 lb) in Bombay, while in Calcutta quotations are per maund of 82 217 lb Further, the prices quoted at Calcutta and Bombay include new bigs but those in up country markets do not include the bags While price movements at port markets are closely related those in and vidual upcountry markets are widely divergent and appear in some cases to bear no relation to the price at the port and to move in contrary directions as compared with corresponding neighbouring markets. This indicates the necessity for improving the present system of

disseminating trailed news and for this purpose a more extensive use of the radio is indicated. Some development in this direction has already been put in hand by the Central Marketing Staff, but similar action is called for in all the provinces and major States.

The bearing of "futures" on "ready" prices is often thought to be harmful In the case of wheat there are a number of fairly representative associations trading in "futures" in upcountry markets, but in the case of linseed Bombay and Calcutta are the only important centies for dealing in "futures" Only two delivery months are traded m, namely, May and September, and the period Juring which these contracts are open varies from year to year Generally the September option is open for about six months and that for May about eleven months It seems clear that the September "futures" quotations are largely based on the cost of storage and are normally therefore higher than the "1eady" prices So far as can be calculated this "future" shows a profit on storage but the May option is influenced more by the Argentine crop and the pros pects of the next Indian crop rather than by the costs of storage and appears to show a loss Although as a whole "futures 'prices are in close sympathy with "neady" prices, and being higher have a stabilising effect, it may be observed that during the course of seven seasons the Ma, option was lower than "ready' on 59 occasions out of 331 at Bombay and the September option lower on 5 occasions only out of 225 During the same period the May option at Calcutta was lower than the "ready" 115 times out of 299 occasions while the September was higher 164 times out of 174

It seems only reasonable to conclude from those figures that the speculative element is somewhat more in evidence at Calcutta than in Bombay and tends to bring about a bearish tendency in the May "futures" It

would appear that the stabilising effect on the "futures" market of Inseed prices in India could be improved by putting the September contract back to say October on November and by reducing the period during which the May option is open. There might, howevel, be some danger in converting the September into a November contract since from November onwards the Inseed market is likely to be influenced not only by the arrivals of Plate Inseed on the world market is but also by the early arrivals of the large groundnut crop in India itself. At all events, some reform of the present system of "futures" contracts appears to be a matter requiring examination by the interests concerned.

CHAPTER IV -- PREPARATION FOR MARKET

A -Harvesting threshing and winnowing

Linseed is grown in India primarily for its oil and not for the field. After harvesting the crop is threshed and the seeds separated by winnowing. The various methods adopted have definite bearing on the quantity of impurities present in the inseed

(1) HARVESTING

The crop is harvested from the middle of February to the end of April depending on the weather conditions of the different producing areas. Harvesting commences about the middle of March in the United Provinces and is finished by the middle or end of April In Bhar Orissa and Bengal operations start about a fortinght earlier and finish at the same time as in the United Provinces. The crop in the Central Provinces Bombay Presidency and Hyderabad matures earlier so that harvesting is taken in hand early in February and is over a fortinght or a month in advance of other areas. On account of climatic conditions harvesting in Kashmir is not done until about July. Generally speaking bold linseed is harvested earlier than small.

As has been stated the crop is also sown as a mixture with other crops such as wheat gram rape and mustard. The actual method of harvesting all these crops is similar throughout the chief producing areas. As a rule the plant is first cut close to the ground with a sucle, but it is sometimes up rooted in which case the earth sticking to the roots gives rise to a greater quantity of impurities with linesed. The type of sucled used may either have a serated or a bulan cutting edge

(2) THRESHING

Before threshing the plants are allowed to dry from two days to a week The threshing floor is usually any open flat space either in the fields or near the homestead. It is first swept and then plastered over with a mixture of cowdung and earth. In some places as in the Bombay Presidency all the threshing floors of a village are located in one place and all types of produce are conveded to this common spot for threshing. The actual operation is as follows. The drued plants are spread out on the floor and trodden under the feet of bullecks the animals being driven round and round over the plants which are being continually raked and turned over The process is depicted in the 1 lustrations opposite this page. The phalla (beam) system is also made use of occasionally as in the case of wheat. Where the quantity for threshing is small the plants are beaten with stakes or small wooden mallets (moongries) in order to separate the seeds and chaff from the straw.

The method of treading out linseed by bullocks is defective in more than one way. Apart from droppings the hooves of the

^{*}An improved threshing floor will also be seen in the lower illustration oppose to this page



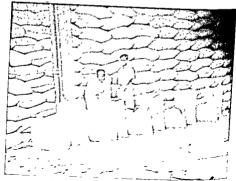
Threshing linseed



An improved threshing floor (\ote the rai ed brick edged platform)



Winnowing Linseed.



The Bombay method of drawing samples.
(Note the arrangement of the bags.)

bullocks carry impurities and also cause the surface of the threshing floor to break up and get mixed with the produce. Secondly the fibre, with the straw, is destroyed. Above all it appears to be an unnecessary waste of cicigy to break up the stalks and stems of the plants, because the crushed straw has no particular value as a cattle food or otherwise.

Mechanical or improved methods of threshing are not used event in the Madias Presidency where it is reported that stone rollers are at times used for threshing. The production of linseed in Madras is or course insignificant.

The unlisation of any other part of the plant is likely to be beneficial to the cultivator of linseed and the problem needs investigation. At present the straw is used as fuel only, but during the course of this survey, there appeared to be some indications of a market for linseed straw if it were to be collected and handled suit ably. It would seem that whatever value the grower could get for the straw would help to reduce the cost of production and ultimately place Indian linseed on a more competitive footing in the world market.

(3) WINNOWING

Winnowing separates the seed from the chaff. Here too the methods adopted are common in all the provinces not only for linsed but also for the other grain and oilseed crops. The mixture of seed and chaff is allowed to fall out of a basket from a height and the winds of heaten do the rest. (See plate facing this page) As the seeds and chaff fall from the basket, a helper, squatting at the winnower's feet, removes the heavier pieces of hisk and chaff which the wind fails to carry away, with a broom

In the case of the mixed crop, a preliminary separation of grains is necessary For instance, in a mixture of gram and linseed the gram being the heavier grain falls near the winnower's feet while the lineed is carried a little further away by the wind. It is then run through sieves made of bamboo slats or perforated tin sheets The linseed passes through the sieve leaving the gram upper most although a certain quantity of the smaller or shrivelled and immature grains of gram may also pass through the sieve along with linseed Sometimes this operation takes place at the commission agent's shop in which event the sieves are hired out at the rate of about 3 pies per bag of grain or onseed sieved but in many instances the mixtures are carried to the markets without further treatment This is quite common for example in the Jalaun district (United Provinces) where carts containing mixtures of wheat or gram known as gazar arrive in large numbers at Konch and Oran marlets As will be explained in a later chapter, sufficient cleaning of the mixed produce is not undertal en because the cultivaters believe that it does not pay to put a cleaner article on

"Mr J A H Duke lately the Oil Expert to the Government of the Unite! Pronnees, has recommended a method for the preservation and recovery of the the market The practice of making deductions for refraction even if the goods are clean, must to some extent be held responsible for the impurities in the produce

(4) Costs

The harvesting threshing and winnowing of the linseed crop is done almost wholly by the cultivator himself, aided by his family Only occasionally is hired labour employed. When this is resorted to, the labourers may be either male or female or both As linseed is a rabi crop and the time of harvesting coincides with that of wheat hired labour is comparatively expensive. It is generally paid for in hind in the United Provinces, Bihar and Orissa the are age rate of remuneration being 5 to 8 per cent of the produce cut vinces, the harvesting charges when paid in cash amount to about 2 amins per head per day while in the Central Provinces the wage per head per day vary from a man to 2 annas 6 pies. The daily wages are often supplemented by a midday meal. When paid in kind any kind of grain of the equivalent value may be given at the convenience of the employer.

B -Practice in other countries

No comparison with the methods in vogue in the other countres can usefully be made owing to the wide difference in conditions costs of labour means of communication and size of holdings. The methods adopted in India are primitive while in the Argentine and the United States these operations are carried out on large holdings by combined harvester and thresher machines drawn by mechanical tractors in most instances.

INTER CHAPTER FOUR.

Since linseed is not grown for its fibre, the first stage in the preparation for market consists of threshing out the seed. As in the case of wheat, the crop is cut by hand and in some cases simply uprooted. This latter practice is definitely bad from the point of view of clean liness. Threshing by treading out the grains by bullocks also adds to the impurities. Winnowing is perhaps the most important stage in the preparation. Apart from the common practice of shedding the seed from a height and allowing the wind to carry away the straw and dust, the linseed is frequently passed through sieves but even so other grains pass through at the same time. Winnowing operations are generally unsatisfactory particularly in those extensive areas where mixed sowing is the prevalent custom.

The cultivator is however not encouraged to put clean inseed on the market as the customary deductions on account of impurities are made at the time of sale even if comparatively clean seed is brought to the market. The result is that linseed has to be cleaned several times, from the stage of winnowing until it is either packed for export by shippers or crushed by millers. The practice in regard to the preparation for market needs in provement. At present it is calculated that the amount lost in paying freight on duit and in extra cleaning amounts to at least 3 lakhs per annum in the areas serving Calculated market alone.

As will appear later no improvement in the present methods can be expected until the non-mutual terms in the buyers' contracts are altered so that sellers of clean produce will not be subjected to deductions on account of dirt when no dirt is present

L137ICAR

CHAPTER V-ASSEMBLING.

A -Methods of Assembling

Linseed is brought to the markets through one of the follow ing agencies —(1) Cultivators, (2) Lindfords and village mer chants (baniyas) (3) Itinerant merchants, (4) Wholesale merchants and Crushers' buying agents, (5) Producers' co operative societies

The approximate share taken or degree of participation by each agency in the assembling of this crop is summarised in Appendix XXII and a detailed description is given below

(1) CULTIVATORS

Cultivators generally prefer to take their produce to the market from the who have their own earts almost invariably do so and at the same time they may also transport the produce of their fellow grow from the inseed lent at sown 1g time on the santan "so "ideom" systems is collected and well to do cultivators also buy the produce of others Payment is made immediately or on return from the markets usually in cash

The amount of Imseed assembled in this way varies in the different provinces and ranges from 10 per cent of the total supplies marketed in Bihar (and Olissa) to about 55 per cent in the Bombay Presidence On an average only about 20 per cent of the total quantity of Imseed arriving in the assembling markets of the country is brought in by the producer in person (Appendix XXII)

(2) LANDLORDS VILLAGE MERCHANTS AND MONEY LENDERS

Supplies also reach the assembling markets through the medium of landlords (camindais and malguears) who take rents in kind from their tenants. In addition to acquiring grains observed to the control of the control o

village merchants plat a very important rôle in the assembling of imseed, since some of them exercise considerable financial control over the cultivators. The amount brought to market by them is estimated to range from 20 per cent in Bihar (and Orresa) to 55 per

^{*&}quot; sau as "-one and a quarter times

f" deorht "-one and a half times

The terms mahagan, sharf and damye are to some extent synonymma although their hierall meanings differ somewhat. Mahagan hierally meaning great man. 'N hence a "banker" Sakukar, also conveys the same sense, darwing from saku meaning "honest" or "respectable". On the other had

cent in Hyderabad Allowing for variation in the conditions obtain ing in the different tracts, about 40 per cent of the linseed brought to the markets in India passes through this channel (Appendix XXII)

(3) ITINERANT MERCHANTS

Merchants moving from village to village (known as beoparis in Northern India and kockuss in the Central Provinces) and collecting the produce from the growers are responsible for the assembling of a large proportion of the produce in some provinces. These are village merchants with the difference that the area of their operations lies beyond their own village. In some parts of the United Provinces cartimen also act as beoparis.

In Bihar, the cultivators seem to prefer to sell at their door and about 60 per cent of the linseed is disposed of to beoparis in this way Before striking the bargain the beoparis take a sample from the heap or, if the lot is in bags by opening a few bags About 5 seers (10 lb) of linseed are cleaned and the impurity content (re fraction) removed and weigned separately When the price eventually agreed upon after considerable bargaining the whole lot is weighed over by a hand scale 5 seers at a time. The allowance for refraction is made (a) by placing the refraction as originally separated from the 5 seer sample along with the 5 seer weight on the scale pan so that an equivalent quantity of produce is weighed extra with every a seer lot oi (b) by deducting the amount of refraction as calculated from the total weight of the produce and paving for the net weight only of clean linseed During the very busy parts of the season cleaning and allowing for the refraction present in the linseed is not done and humla sales are common This means that the amount of impurity content present is estimated by the prospective buyer by a visual examination of the goods and the total refraction kept in mind when offering the price After the rate is settled the whole lot is weighed over exactly as it stands. The seller receives payment from the beopar at the rate decided upon, without any further deductions whatever Payment is made either in spot cash in full or a part is so paid and the balance after 5 to 10 days by when the beopart has usually sold the produce many place in North Bihar the bcoport has to pay an amount vary ing from three pies to six pies per bag to the zamindar before he can remove the goods from the village

In Bengal also the producers generally sell to beopars but in the Bombay Presidency where a larger proportion is taken to marked directly by producers the amount assembled by this class of mer chant is comparatively small

On the whole the amount of inseed collected by these itinerant merchants would seem to be in the neighbourhood of 35 per cent of the total quantities brought to the assembling centres (Appendix XLH)

(4) WHOLESALE MERCHANTS AND CHUSHEPS' BI YING AGENTS

Wholesale merchants and crushers as a rule do not buy in the villages nor do they take an active part in the assembling of lin

seed In the Central Provinces United Provinces and Bombay for example they buy their requirements in the local markets. In Bihar and Orissa however the outstation depots or branches of oil mills and wholesale merchants send out representatives to buy in the vollages winchever the supplies brought in by the beoparis are not considered likely to be sufficient.

The quantities assembled in this way would be about 5 per cent of the total marketed (Appendix XXII)

(a) PRODUCERS' CO OPERATIVE SOCIETIES

There are no producers cooperative societies engaged in the assembling of linesed. A few of the cooperative purchase and sale societies in Bombay occasionally deal in Inneed along with other produce but the quantities so handled are quite insignificant.

B-Markets

Any place or locality in which persons collect with the object of selling any kind of article—whether agricultural or otherwise—nay be celled a mariet. A mariet may be held in a place special is set up or built for the purpose or it may grow up on a piece of waste lind by the road side or in any other convenient place size tronde by long usage. In India, the markets as a rule deal in a heterogenous variety of varietilural commodities and it is exceed ungly rare to find one article one mariet. Innseed is mean abliv odd in the markets are which tride in grains and oilseds in anarkets have been given in the Report on the Marketing of Wheat in India a brief description only is given here.

The markets concerned in the linseed trade fall under one of the following three groups

- (1) Primary markets are small village markets mostly periodical Linesed is brought to them in computatively small quan
- (2) Secondary markets are the daily markets in the producing area to which laused is brought in larger quantities by cultivators of by the various agencies collecting linseed from the growers. These markets are the chief points of assembly centres but in places located near the mills they function both as assembling and distributing centres.
- (3) Terminal markets are those at the ports which draw supplies from the assembling markets in the producing areas and function as distributing centres for the export trade and for the local milling industry

(1) PRIMARY (VILLAGE) MARKETS

In Northern and Central India these sma I markets are known so hats or painths and in Madras and South India generally as shandus

They are generally held periodically usually once or twice a week and last for a day—buyers and sellers dispersing before nightfall. A wide range of articles is brought in to these markets by itinerant trad ers and village merchants. The majority of the commodities hand led are grains pulses flour sait sugar spites and the daily neces sities of life but there are also other writes such as fruit sweet meats eigearettes and tobacco cloth trinlets etc. Their sites are usually on a piece of open land near the village. Shelter from the elements is provided by temporary or semi permanent structures when are often thatched and sometimes put together with corrugated from sheets on a wooden framework. Most of these structures can be dismantled and re assembled without much trouble. Instances when a kat has had to be postponed oving to ruins are not uncommon.

These village markets play a comparatively small part in the inseed trade as inseed is not an article of food or one of the ordinary daily necessities and consequently entails little retail distribution. The small quantities of inseed brought to the hats by cull tradors and village merchants are usually bought by the owners of village ghans. In Assam however the weekly hats are the only markets of assembly and the buyers are enerally village merchants or the agents of wholesale dealers. Village or fairs held during religious festivals in certain parts of India do not figure at all in the as embling of linseed.

(2) SECONDARY MARKETS

The daily or permanent marlets ar known be such names as nands in Northern India and as gives in Central India. They vary to a considerable extent in size layout and the facilities available. A marlet may consist of just a few merchants or commission agents shops in the buildings lining a public thorough fair, or it may be in a specially laid out rectangular area enclosed by buildings consisting of shops godowns etc devoted solely to the marketing of agricultural produce of all 1 mds. The best examples of this type of market are to be seen in the Punjab and in the western United Provinces where they are called mands but they are also encountered in the Central Provinces in Central India and to some extent in Bombas. Most of the markets concerned in the assembling of linseed are generally situated near railway stations.

In contrast to these systematically laid out markets which date from farly recent times are those which have haphazarally grown up from small beginnings into sometimes places of considerable importance. Typical of these are many of the markets of the eastern United Provinces Bihar and Bengal which conform to no set plan but have simply spread themselves all over the towns in which they are situated often without any regard to the conveniences and facilities which should be available for the proper handling of large quantities of produce. A particularly noteworthy example of this kind of market is Cawippore in which city the merchants'

godowns and shops are not only in widely separated localities but the actual oilseeds market itself is held along the roadside—a buy thoroughfare—near the railway goods shed at Coopergan

(3) TERMINAL MARKETS

The real terminal markets for linseed are Bombay and Calcutta' in both of which there is a large spot or ready market as well as fullties for futures' trading. These terminals are mainly concern ed with distribution. At Bombay, the ready market for olseeds is located at Dana Bunder where there is a large number of cupal trade organisation dealing with actuals' or delivery contracts for linseed namely the Grain Merchants' Association has this market where bujers and sellers or their brokers and representatives meet in the afternooms usually between 12 PM and 4 PM Interval Chimber of Commerce which has recently moved into a league new building on Kalbeti Road in the heart of the city a considerable distance away from Dana Bunder.

At Calcutta most of the linseed arriving at the port is stock ed in the Port Commissioners' sheds at Lantapuker in the Kidder pore Dock area some 5 miles away from the business quarter of the city where most of the actual trading is done. There is another gram market opposite the Howrah Station in a large shed placed at the disposal of the Indian Produce Association by the Ess Indian Railway for the purpose of trading in oil seeds and grams arriving by rail In this market transactions normally take place between 3 30 and 5 30 in the afternoon signees brokers and others in possession of railway receipts, allowed to draw samples of about 1 seer each (1 lb) from relative consignments before taking delivery from the railway samples are then displayed to prospective buyers when sales are effected on the basis of rates settled under the purdah or cover sys tem The discarded samples left on the floor after the business of the day is over are collected by the railway staff and auctioned periodically the proceeds being credited to the railway

There are two futures" trading associations in Calcutta of which the most important is the Calcutta Wheat and Seeda Association with its office and trading ring in Cotton Street Not far off is the other the Indian Wheat and Seeda Association, which performs similar functions

Owing to the distances separating the various offices of buyers and sellers and the difficulty of gaining access at times mutually convenient a very large proportion of the business is done over the telephone at both the terminal.

^{*}Vizagapatam has been excluded as it is a port of shipment only for the linseed consigned munly from the eastern districts of the Central Promets'

(4) OWNERSHIP AND CONTROL

Markets are usually owned either privately or by local bodies such as Municipal Boards, District Boards or Notified Area Com mittees In many instances the right to hold a market or hat on private land is acquired by the owner by long usage. A large number of markets in tural areas in the United Provinces, in Bihar and in Bengal, are owned by zamindars and are called zamindars markets. In such markets, taxes or tools are levied directly or in directly on the commodities handled in the market. An example of the former is a charge made on each cart entering the market while in the indirect system each stall or shop pays the market owner a consolidated fee

The markets owned by local bodies are usually managed by committees and are sometimes leased out to contractors or associa tions of merchants For example the Hardingeganj* market owned by the Jhansi (United Provinces) Municipality is leased out for a lump sum of Rs 12,000 a year to a panchayat; of merchants who reimburse themselves by charging a fee of Re 080 per cent (1 per cent) on all sales made in the market

In the Central Provinces the village markets are owned and controlled by District Councils who draw up byelaws for their management subject to the approval of the local Government arrivals in such markets are subject to a cess the rates being in the neighbourhood of 3 pies for each headload 6 pies for shoulder loads, known in the vernacular as lauad, 1 9 pies per load carried on pack animals and 2 annas for each cartload Brokers and commission agents are licensed on a yearly payment of Rs 5 to Rs 12 and weighmen and measurers on payments ranging from Re 1 to Rs 5 The rates which brokers, commission agents and others are entitled to charge are also sanctioned by the District Councils the average being as follows -

Brokerage and Commission

Re 140 per 100 bags

Weighment and measuring

Re 063 per 100 bags.

The secondary markets or gunjes in the Central Provinces are controlled by municipalities and Notified Area Committees, the market sub committees being composed of municipal members and merchants In markets of this type one or more of the fol lowing charges are levied uz, vehicle toll or tax, octron terminal tax and road or market tolls

In the Bombay Presidency some of the markets are controlled by associations of local merchants For example at Chalisgaon

^{*}Named after a former Vicerov

insured after a former \tector
insured after a former \text{Vector}
inputation \text{"-1} a gathering of \text{ \text{\$\hat{e}\$}} elders" \text{ \text{weight}} ehosen from among the
important members of the community \text{However, the world does not necessarily
imply then \text{\text{\$\hat{e}\$}} for the pressure constitute \text{\$\text{\$\hat{e}\$}} packagat \text{and \text{\$\exitit{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\

shoulder These are known as Balang, in the United Provinces and Banka in

the local Grain Merchants' Association levies a cess at the rate of one anna per cart of produce sold at the market and in return provides the following facilities

- (a) the posting up of the Bombay rates
- (b) the checking of weights and measures
- (c) a kind of tribunal of arbitration and
- (d) the fixing of scales of market charges

In Assam the lats are under local boards with the exception of a zew in the Sylhet district which belong to zamindars. All these hats are leased out by auction to private individuals

(5) REGULATED MARKETS

Regulated mariets in which the market charges are clearly regulations under the provisions of a Markets Act are comparatively few as far as inseed is concerned. The regulation ander the provisions of a Markets Act are comparatively few as far as inseed is concerned. The regulated markets in the Bombar Presidency do not figure in the Inseed trade while in the Central Provinces where market legislation. Was enacted markets. With the introduction of the Agricultural Marketing abad Sailu Jalia and Latur have been brought under the operation of the Act. At these mariets in that State e.g. Avaing abad Sailu Jalia and Latur have been brought under the operation of the Act. At these mariets the produce is weighed by a lies and in the sail or equilibrium and a receipt given to the owner. The arbitist is also required to give a proper receipt when the goods are sold all other relevant particulars. A copy of these saile receipts in each of disputes.

The layout of regulated markets as might be expected is comparatively better and greater amenates are provided for early by metalled roads have sheds for the use of cultivator men and cattle besides generally clean and sanitary conditions from the proof of such markets have shown that the proof on the proof on the proof on the proof of the p

(6) Areas served by markets

Facilities for communication and transport the incidence of unfluence of confidence the volume of trade brought to a particular market Broadly speaking there is a marlet of some sort every 10 or 15 miles at which cultivators can dispose of their produce Where

^{*}The Central Provinces Agr cultural Produce Market Act 1935

communications are not well developed instances in which the produce was brought to market from villages 30 or 40 miles distant were frequently met with

The areas served by the port markets of Bombay and Caleutta may extend to as much as 600 miles or more This is rough by the distance between the districts near Cawapore and Caleutta and Bombay Arruals at Caleutta are drawn from the United Provinces Bihar and Bengal while those at Bombay derive from Hiderabad Central India and Rapputana States Central Provinces and the southern districts of the United Provinces.

C-Persons engaged in assembling

Before discussing the various practices in respect of assembling a brief description may appropriately be given of the persons who function in a typical lineed assembling market. The principal of these are (1) Arhatiyas or commission agents (2) Dalals (3) Folss and Bayas (weightmen) and (4) Palledar.

(1) Arhatiyas

The word arl at or arat means commission and persons or firms selling any goods for others on a commission basis are called arhatiyas or aratdars. Many carry on the functions of a mer charty and selling on their own account. Arhatiyas that is to man categories ver, kacheka und pakla. The for mer is usually a person of small means and deals in kackeka produce it the produce before it is bagged graled, where this is done) or made ready for pakla or final sale and it is to this type of merchant that the cultivator takes his grains and oilseeds. When the produce has been placed in his charge by the owner the kackeka arhatiya assumes the role of a seller and transacts sales on behalf of his chent. It should be noted that the kacheka arhatiyas pay the seller in spot cash and are themselves responsible for collection of the sale proceeds from buyers.

The pakka arhatiya is the true wholesaler and buys and sells on behalf of outside merchants. The pakka arhatiya operates on a far larger scale buys produce through or from the kachcha arhatiyas and from other merchants and makes sales to exporting firms mills other pakla anhatiyas and merchants etc.

The functions of kachcha and pakka arhatiyas are often earried on side by side under the same roof by persons known as kachcha pakka arhatiyas

(2) Dalals or brokers

These are the intermediaries who bring buyers and sellers to getter. They are entirely concerned with prices and do not actually handle the goods. In some markets however, the brokers per form the same functions as kachcha arhatiyas ie, they sell produce on behalf of producers and arrange delivery payment etc. Brokerage is known as dola!

(3) Tolas AND bayas

Any person pursuing the occupation of weighing is known as a tola A baya on the other hand is a person beensed for weighing or measuring by the market authorities. As a class however the baja ranks higher thin the tola as ho is generally a person po sessing a little capital Bayas were found to be operating mainly in Central India and Rapputana In some markets they combine their normal functions with those of the kachcha arhatiya Weighing charges are commonly known as

(4) Palledars on hammals

These are the market labourers who attend to the manipulation and handling of the produce in the market A number of palle dars worl independently in each market and are casually employ ed as and when their services are required. Others are permanent ly employed by the arhatiyas The charge paid for handling produce is generally known as palledars or hammals

(5) OTHERS

Numerous other persons perform various minor functions in the markets These are the waterman (bhishti) the sweeper the waterman the arhatiya s cook etc who in one way or another administer to the needs of clients and others using the market

In most of the inseed markets particularly in Bihar and the United Provinces deductions in kind and occasionally in eash are made by the arhatiya from the seller s produce to pay for the services of these functionaries In many instances these deductions are not only numerous but there is evidence to show that in practice far more than the admitted allowances in hind are taken

D -Market practices

(1) GENERAL

Broadh spealing market practices all over the country are fairly well established by custom Market legislation in Bombay to the Country Bombay in the Coun the Central Provinces Madras and Hyderabad has done much by improve conditions in some market, by specifying the various charge and heensing the different functionaries. On the whole however old traditions still persist and undefined practices are being follow ed without any consciousness that a change is needed

(2) PROCEDURE OF SALE

The sellers generally reach the marlets early in the morning and business is transacted between 8 AM and noon the subtraction quent hours being devoted to the delivers of the goods and the

On arrival the produce is talen to the shop of one or other of the commission agents in the mariet. The arhatiya selected is generally the one with whom the grover or the village merchant

or beoparn has already had financial or business relations. All though there is no compulsion on the seller to tale his produce to the commission agent from whom he had previously secured advances or loans in kind or crish nevertheless the fear that financial accommodation may be withdrawn in the future induces the cultivator to trade through his creditor. The produce may be heaped in front of the ability as shop or allowed to remain is it is brought either in bags or in crits. Sometimes the bags, as be unleaded directly into the commission agent is godown. Occasion ally a preliminary cleaning of the produce is also done for example in some of the mri ets of Bengal and Bombay.

The buyers then assemble and before making their offers appraise the quality of the goods by picking up τ few hindfuls or getting some of the bags opened or by taking out τ small quantity with a sampler linous is a paikh; (See plate freing page 5). If example is then examined and its impurities, est in itel

Sales are sometime, made cg in Lengal on what is locally known as l ast basis ve siter making allowance for the impurity content present. The impurities from a small specific quantity of inseed usually about 5 seer are separated and weighed and an allowance or dedu tion made from the whole tot on this basis. Owing to the puncthlous manner in which the sample is cleaned the deduction from the entire pricel words out in excess of what it would have lost with ordinary commercial cleaning.

The offers of the different buyers are indicated to the com mission agent or broker either (a) openly or (b) under cover or (c) by bids in auction according to the system of sale prevalent in a particular market. But whatever the system adopted the price is invariably communicated to the seller before the close of the bargam be he a cultivator village merchant or beopan and the latter always has the option either to sell his goods at the rate or reject the offer if he considers it too low. If the offer is accept ed the goods are weighed o er by the arhatijas weighmen and in some places by heensed weighten If the seller decides not to dis pose of his produce on that day he leaves it with the ail itiga who stores it for him until sold. The produce left with the arhatiya is either stipulated to be sold at the latter's discretion or a price limit is given ly the owner below which sales are not to be made In all such cases an advance is generally made subject to interest at 6 to 12 per cent per annum amounting to about 75 per cent of the value of goods at current rates

The labour involved in handling up to the stage of putting the produce on to the scale is generally provided and paid for by the seller or the commission agent working on his behalf Subsequent operations such as removing the goods from the scale filling it into bags or loading on to the earts are arranged by the buver

An allowance for impurities etc is often made during weigh ment by weighing a fixed extra quantity. For example, in Cawn lore linseed is weighed with a 5 seer 3 chhatanks, weight, which is tal en as 5 seers for the purposes of payment Thus 3 chladata's revery five seers, i.e., 3\frac{3}{2} per cent has to be allowed by the seller in every transaction even if the lot contains far less impun ties. On the other hand if the goods are adjudged to be very durty an extra allowance is made in addition to the above In many hand the seller it is also enstomary to make certain payments in kind these are deducted before weighment is completed after weighment the total value based on the rate previously settled for impurities market charges etc. These vary widely in different parts of India and reference will be made to them subsequently.

As already mentioned the seller is generally paid on the same day by the orhatiya who takes upon himself the onus of recovering from the buyer the value of the goods sold to him

(3) METHODS OF SALE.

- (a) The Cover system—Where this method of sale prefuse the buyer conveys his rates to the arhatiya or broker by classing the latter's right hand under a piece of cloth and indicating by pressure of our more fingers what he is prepared to pay East buyer therefore does not know what his competitor is bidden when the last bid has been made the arhatiya consults the self-and acceptate the highest offer. In some places it is customary for the arhatiya to announce the offer finally accepted together with the rate accepted is not disclosed to the other buyers. This system is followed for other commodities also and is quite common in some of the markets in the Central Provinces the United Previnces Sombay and Benezal.
- (b) The Open system —According to this system indudual buyers may give offers to the arhatiya at any convenent time. These bids are not necessarily binding on the person making the and the arhatiya may accept or refuse any offer received during the course of a day. He informs his client the owner of the pied duce of the highest offer received during normal working hors and should the latter agree the bargain is closed. This system's met with almost everywhere in India. Indeed it is the call.
- (c) The Auction system—In markets in which this system is in force buyers assemble at certain customary hours and each let is put up to auction separately by the auctioner who is insulfy constantly aware of the Trend of prices. The highest hold section at that rate. The tint for which holds are made and the loved that allowed vary in different markets. The auction system is widely practised in the Central India States the Central Provinces and Bombay and also in some of the Southern and eastern districts of the United Provinces.

The different systems have been compared in some detail in the Report on the Marketing of Wheat in India. It is only neces sary to say here that each system has certain merits of its own and that if the final bid is openly declared as soon as it is offered, sellers' interests annear to be fairly safe.

E -Market charges

The deductions made from the sile proceeds of linseed brought to the markets are both in eash and in kind and go under a variety of names in different markets and provinces but generally speaking these charges fall under the following main heads—

- (1) Taxes and tolls.
- (2) Commission and brokerage
- Handling and weighment charges
 Charges for other services
- (5) Charities.
- (6) Quality and weight allowances
- (7) Miscellaneous

(1) Taxes and tolks

These include the octroi and terminal taxes levied by munici palities, and the tolls etc levied by local bodies owners of markets (samindars) or by market committees. The octron or terminal taxes payable on linseed in different towns and cities vary from a few pies per maund or a few annas per cart to as much as Re 020 per maund or Rs 2 per cart For example in the United Provinces, the Notified Area Committee tax at Bharwa Sumerpur in the Hamir pur district is only Re 020 per cart while at Benares the octroi duty is as much as Re 023 per maund In the Central Provinces the municipal tax at Sihora is as low as Re 016 per cart whereas at Amraoti, Nagpur and Ellichpur the terminal tax is Re 0 2-0 per maund which amounts to about Rs 2 per cart High rates of octroi and terminal taxes often affect the arrivals in markets For instance it was noticed that linseed arrivals at Nagpur market had fallen considerably owing to diversions to neighbouring markets where such charges had not to be incurred. The relative incidence of municipal taxes on linseed and linseed oil also determine whether it is profitable to import linseed or linseed oil into a particular market The position at Agra may be cited as an illustration terminal tax on linseed in that city is the same as for linseed oil both standing at 6 pies per maund This obviously favours the importation of the oil placing the local crushing industry at a disad vantage

In privately owned maffets tolls are payable both in cash and in kind and vary considerably. For example in the United Provinces the zamindar tax at Gonda is Re 0.80 per cart and at Hamirpur 3 seers per cart while in the markets of Nanpara, Matera, Resa and Rupadha in the Bahraich district it varies from 4 to 10 ceers per cart. In Bihar the toll rate at Maharaggun is \$\frac{1}{2}\$ pre-

head also include contributions to the arhatiya's clerks and apprentices and a fee for the making out of invoices and accounts. It is not unusual for the deductions customarily made from sellers under these heads to be retained by the arhatiyas monthly wages only being paid to the different persons so employed

(5) CHARITIES

The deductions under this head are for contributions towards chantable objects the unounts collected being destined for some specific institutions such as goushalas temples schools etc or ther may be apportioned to different charities at the discretion of the commission agent from time to time. There are usually no definite periods for the disbursement of this money nor is there any elack to see that the amounts collected under. Charity are actually paid out for such purposes. There is every reuson to believe that considerable sums frequently he to the credit of such accounts (dharmada) with various firms the funds being used for trading. It should be noted that interest is seldom if ever allowed to the credit of this account.

(6) QUALITY AND WEIGHMENT ALLOWANCE

The condition of the produce as it arrives in the market is tery rarely clean All kinds of foreign matter and impurities called harda are present in linseed Allowance is made for these mujurities by the buyer taking extra weight which in mix t cases is a fixed item irrespective of the actual impurity content

As the produce is weighed over usually in 5 seer units an allowance to compensate for draftage is also made in many of the markets by grung the buyer a small additional amount over the maund. Thus is I nown as dhalta—literally the turn of the scale—and as usually 4 chhatanks per maund.

Deductions for inferiority in quality or for small grain tender ed against transactions of bold grain are generally not customary in the small assembling markets being more in vogue in the large distributing centres and at the ports

(7) MISCELLANEOUS

In some marlets a deduction is made cilled note batta* if payment be demanded in silver instead of currency notes. Another deduction is made from the seller by the arhatiya to cover him self for the loss of interest caused by his paying cash to the seller and allowing a period of credit to the buver. This charge is known niddat (hierally period).

As a typical example of the various market charges the rates and the schedule of deductions levied at Cawapore are given below (The largest buyers in this market are the mills.) After the rate

^{*}Th s is a term which came into prominence during the War when silver currency was relatively scarce. Although conditions have now returned to normal the sallowance continues in a number of markets.

for a lot has been settled through a kachcha arkatiya the cart it taken to the mill and the contents weighed. When the weighment is about to finish, the following quantities are extracted, items (c) and (d) being either retained or distributed at the option of the mill

- (a) 2 handfuls (angis) per cart for the mills' palledars
- (b) 2 handfuls per cart for the charhia (the man who holds the bag near the scale at the time of weighment)
- (c) 4 handfuls per eart for brokerage (dalalı)
- (d) 1 handful per cart for the mills' clerks (munimi)

In addition to the above deductions for distribution to the buy ers' employees, the following quantities are also taken from the produce and distributed to the kachcha arkativa's men

- (a) 2 handfuls for the charma (see above)
- (b) 3 handfuls for the scalemen (nahadar and dandidar)

Thus, 14 handfuls in all are taken from every cart. These so called "handfuls" are supposed to be about 4 chhatanks (\$10) each but in practice anything from 1 to 14 seers (2 to 3 lb) is taken. The practice is aptly described by the saying "Kahat paua, sit denker" (they say it's a pao but actually 14 seers is gone)

Any quantity under 5 seers that may be left over when weigh ment is about to finish is not actually weighed but is taken by the buyer at a rough estimate only

After weighment when the owner of the produce returns to the shop of the kackcha arhafiya for payment the following additional deductions are made from the weight of Inseed delivered to the buyer and the final amount payable is calculated on the net weight arrived at after these further deductions—

- (a) 10 seers on account of kharch gars (expenses for the
- (b) 4 chhatanhs per maund for karda (impurities)
- (c) 14 chhatanks per mannel to compensate for loss in hand ling (known as phanks)

Having thus arrived at the net weight, the total value is now calculated thereon but before anything is paid to the seller a few more deductions have to be made. These are

	Rs	a	p
(a) Brokerage (dalali)	0	4	0 per cart
(b) Charity (dharmada or gowshala)	0	1	0 per cart
(c) Note batta (if the seller asks for payment			

m silver) 0 1 0 per cart

(d) Chabens* (lood ordiet allowance) 0 3 6 per cart

^{*}Actually only Re 0 2 0 are paid to the cartmen

The buyer pays the arkatiya Re 190 per cent as commission and Re 030 per cent for weighment

(8) Total Market Charges

The amount of the charges, under the different heads enumerated above, payable in a number of typical markets in the linseed producing areas are summarised in Appendices XXIII to XXVIII. These charges represent the expenses involved in entering the market with the produce and the changing of ownership there The basis for the various charges differs even in the same market. They may be either per maund, per bag, per cart or per hundred rupees and may be payable in eash or kind In order to ensure proper com parison, the value of linseed has been taken at a uniform rate of Rs 5 per maund and the different charges have been calculated per hundred rupees Expenses incurred by the seller in transporting the goods to the markets and by the buyer in removing his purchases from the market, are not included in these charges for the reason that these vary with different sellers and buyers in the same market according to the distance the goods have to be carried

As will be observed, the greater proportion of these expenses is invariably borne by the seller, the buyer's share being compara tively small and in some cases nil

It will also be seen from Appendix XXIX, that the individual charges in different areas bear no relation to one another and taxes appear to be highest in Central Provinces, commission and brokerage in Bengal, handling and weighment in the Central India and Rajputana States and charities in the United Provinces, where the allowance for quality and weight also forms a consider able item in the total expenses The total admitted market charges are highest in the United Provinces, an average for 10 markets being 663 per cent In the Central India and Rajputana States the average charge for 4 markets amounts to 343 per cent and for 4 markets in the Central Provinces 298 per cent The charges in 6 assembling markets in Bihar averaged 296 per cent the lowest average charge occurred in Bombay, the average for 5 markets being 178 per cent only

Market charges in the United Provinces are highest largely because of the practice of levying them in kind in the north eastern districts particularly on account of quality and weight allowances At Gorakhpur, for example the dhatta allowance (draftage or reses in weight) is 1 seer per maund 16, 25 per cent with another 2 chhatanks per maund, ie, 03 per cent for karda (impurities)

In the adjoining province of Bihar deductions for quality and weight are comparatively low presumably because a large proportion of the produce is brought to the markets by beoparis, and al lowances for refraction etc, are made in settling the rate

In the Central Provinces the market charges in a number of markets have been fixed by market committees and are compara tively low Were it not for the high rate of terminal tax at two

L137ICAR

markets (Nagpur and Jubbulpore), the average for this province would have been considerably lower

In the Bombav Presidency also the market charges have been fixed by the local associations in a number of markets and it will be noticed that there are no deductions on account of quality and weight allowance

In Hyderabad the total market charges in 3 unregulated markets average 2.49 per cent and in 4 regulated markets 2.25 per cent only. While the tolls taxes and commission are slightly higher in the regulated markets charges for handling weighment and deductions for charities are lower.

F-Finance of Assembling

(1) Village banıya, mahajan and sahukar

The cultivator generally depends on the village merchant (baniya) or the mahayan or sahukar (money lender) for all the financial help that he may need from time to time for his agricultural operations and domestic requirements during the year. These advances are usually made on personal security and are payable after harvest. The rate of interest varies according to the standing of the borrower and may be anything from 12 to 36 per cent per annum. When a cultivator is so indebted he has little chose but to take the crop to his creditor and it is not surprising if in the circumstances the latter trikes full advantage of the situation. For example, in the United Provinces it is quite the normal thing for village merchants to demand from the grovers about I seer per rupe than the actual local equivalent of the rate at the nearest assembling market.

Altlough the cultivator can sell his goods independently and pay his creditor afterwards and is not compelled to sell the product through or to his creditor he does so in order to retain the latter's goodwill and ensure the continuance of future favours

(2) Arhatiyas

Sometimes the producer directly approaches the commission that case takes his produce to the latter to be sold through him When the goods are sold the arheatyr adjusts his outstanding against the sale proceeds and pays the balance over to the cultivator in cash

Village merchants and itinerant merchants (beoparis) often take advances from arhatiyas for making payments for their put chases in the villages and are consequently morally obliged to sell through their creditors

(3) BANKS

Joint stock banks do not advance loans to cultivators and village merchants on personal security or on the security of crops They are however prepared to make advances to commission agents and merchants on the security of pledged stocks of various kinds of agricultural produce (A typical agreement form is given in Appendix XXI)

Before making an advance the banks generally require a hypothecation deed and pronote to be executed by the borrowers produce must be stored in approved godowns under the banks locks and insured against fire, the policy being made out in the name of er assigned to the bank. The premiums for this type of insurance vary for different commodities and according to the construction of the storage godown, being anything from Re 0-40 to Rs 1-40 per cent Linseed stored in a pakka godown with corrugated iron roofs free from abnormal risks would ordinarily be insured against fire for Re 060 per cent (3|8 per cent) Godowns containing pledged stocks have affixed to the door or other prominent place the bank's name board Watchmen (choukidars) and godown keepers are employed by the banks, as and when necessary to supervise these stools while periodical visits of inspection are made by the banks' officers The amount advanced is 70 to 75 per cent of the value of the goods calculated at current rates If prices fall to such an extent as to reduce the bank's margin appreciably the borrower is called upon to deposit a further sum sufficient to restore the margin to the 20-30 per cent level, or alternatively to give additional goods Cash credits are generally given for 6 months and in all cases must be repaid before the next harvest. The rates of interest vary in different places and periods. With plenty of cheap money available during the past few years the rates have tended to fall and are now around 5 or 6 per cent

The activities of the banks are still mainly confined to the towns and large mirkets. Similar facilities are laiding in the small as sembling centres. It must be observed however that far less fin ancial accommodation is required from the banks for linseed storage than for example, for wheat. A rough idea as to the extent of parturpation by the banks in advancing funds against linseed stocks may be formed from the fact that at Gonda a very important in seed market in the United Provinces 5917 maineds only or about 220 tons, were pledged with the banks in that town in 1935.

(4) Co operative Societies

Co operative societies play an insignificant rôle in the assembling of linseed. The societies in Bihar mainly handle nice those in the Central Provinces and Berar deal in cotion while in Bengal paddy forms the chief commodity traded in A few only of the cooperative sale societies in Bombay deal in Inseed, functioning in much the same way as arhatiyas but the quantities handled by these secreties hardly exceed 25 tons annually

The co operative societies' operations are mainly in the sphere providing agricultural credit. In 1934 35 there were 9 provincial co-perative banks in different British provinces and one each in Hyderabad and Mivsore States. These financed 615 central banks which in their turn financed about 93 000 primary units of which

about 79,000 were credit societies. During the year mentioned loans amounting to about Rs 5 crores were advanced to members. No statistics are available to show what amounts or proportion of the total sums advanced were against the linseed crop

Loans are advanced on the personal security of at least three members jointly and severally, and are repayable by instalments coin ciding with the harvest periods 'The rates of interest charged by co operative societies in different areas are generally lower than the current local rates and during the last year varied between 6 and 124 per cent.

INTER CHAPTER FIVE

At the assembling markets not more than 10 per cent of the produce of some areas is brought in by cultivators but in other parts the cultivator brings in more than half. It seems clear that where the market charges are few in number and small in amount the cultivator makes greater use of the markets himself but where the charges are high and nu nerous he is afraid to bring his produce to the market rs he is liable to be victimised. He prefers in such cases to dispose of his produce in the village to local or itinerant merchants (beoparis) who between them are responsible for assembling about 75 per cent of the Inseed

The market charges are scandalously numerous in some cases and appear to be particularly high in the United Provinces which is a large linseed producing area In Cawnpore market for example the producer who brings in a cart load of linseed has to part with 14 hand fuls (anjis) per cart to palledars, weighmen, clerks etc The handfuls are supposed to be about four chhatanks but in actual ract range from 16 to 24 chhatanks Apart from that, ten seers are taken on account of expenses for the cart, 4 chhatanhs a maund for harda (impurities), 11 chhatanks a mound as compensation for loss in handling (phanks) and the tale has yet to run for he las further harges to pay on account of brokerage (dalali), charity (dharmada), note batta (if the seller asks for payment in silver) and chaben (on account of food), on top of which he pays to the arhatiya Rs 190 per cent commission and Re 030 per cent weighment charges The poor cultivator must feel himself lucky at he end of the day that he is left with his cart and bullocks to tal e home

The total estimated charges on an average of 10 markets in the United Provinces is over $6\frac{2}{3}$ per cent

In Bombay on the other hand the average of 5 markets was about 13 per cent only. The high rate of charges in the United Provinces is largely due to the practice of levying them in kind and particularly on account of fixed deductions for harda (impurities) and dhalta (draftage or weight allowince). In the Central Provinces market charges in a number of markets have been fixed by market committees and are comparatively low, but the high rate of terminal tax at two important markets (Nagpur and Jubbulpoic) cather the average to reach almost 3 per cent.

The obnoxious effect of octroi and terminal taxes are to be seen it \agpui where the Municipal tax on earts entering the market is Rs 2 and sellers have found it necessary to divert then linseed to other markets where the municipal tax is much lower. In Agra the Municipal tax on linseed 1 the same as for linseed oil, viz, 6 pies per maind which obviously favours the importation of oil and places the local crushing industry at a disadvantage. It is impossible to over estimate the hampering effects of such buildens on the trade in agricultural produce and there is urgent need for the local authorities concerned to take immediate steps to remove these disabilities.

It is quite clear that in regulated markets the charges are much lower and, as producers themselves make nuch greater use of such markets, the number of intermediate commissions is reduced. The establishment of regulated markets and the bringing under control of the number and amount of market charges is a matter calling for very early action

The old problem of indebtedness apparently cal es a good number of the cultivators to borrow money from the local bannyas at rates which may vary from 12 to 36 per cent Unfortunately, there is evidence that when he takes his linseed later to the same merchant it is quite the normal thing, at least in the United Provinces, that the merchants demand from the growers about one seer per rupee more than the actual local equivalent market rate so that the producer loses both ways

The co oper time societies play no part in the market ing of linseed and it is difficult to know to what extent their accredited operations affect the marketing of this crop particularly

It seems clear however that the activities of the larger banks are still mainly confined to towns and large markets where they do a good deal of business in making advances to arhatiyas up to 70 or 75 per cent of the value of the produce lodged in sealed godowns. The immount of linseed so pledged is, however, small. The normal rates of in terest in such cases have tended to fall in recent veris and are now round 5 or 6 per cent. There seems scope for the banks further extending their activities to the smaller assembling centres.

CHAPTER VI -GRADING AND STANDARDISATION

A -Classification.

It was stated in Chapter I that the three main classs of Indian linseed according to the present trade classification depend on the size of the grain and are known as Bombay Bold Calcutta Bold and Small It has also been shown that the oil content within ortain limits is closely related to the size. The system of classification according to size therefore roughly classes linseed according to all content also

(1) EXPORT MARKETS

According to the Incorporated Oil Seed Association contract on which practically the entire export trade is worked tenders of Bombay Bold , used shall be warranted to contain not more than 20 per cent small grains—any larger proportion being allowed for at the rate of 0 00 per cent for every 1 per cent of such excess The percent age of small grains is ascertained by survey conducted under the auspees of and according to the rules of the Incorporated Oil Seed Assoc ation For shipments of Calcutta Bold the Association's basis is 14o grains per gramme and any excess is penalised at the ale of 0 lo per cent of the contract price for bold linseed for every gian ovel 145 with a maximum allowance to buyer of 13 per cent. This me ins that tenders of Imseed weighing between 146 and 153 grans fer gramme are acceptable against Calcutta Bold contracts will an appropriate allowance fixed in accordance with the above mentioned

(2) INTERNAL MARKETS

In the internal trade local usage permits Bombay Bold to be tendered with a content of anything up to 10 per cent by weight of small grains If the proportion of small grains exceeds 10 per cent but is within the limit of 35 per cent an allowance is payable to the buyer on the excess over 10 per cent an anowance is payable the buyer on the excess over 10 per cent according to the d ficience. between the current prices of bold and small linseed If the small grain content is more than 35 per cent the buyer has the option to reject For Calcutta Bold the local basis is much the same as in the export markets but certain shippers and millers allow sellers a lat tude of a few grains and accept tenders containing up to 152 grains pet gramme against contracts for Calcutta Bold Whatever nay be the basis fixed by individual concerns it may be noted that the system of allowances at Calcutta is different from Bombay in that any excess over the basis immediately places the tender into the Small category and the whole lot is paid for at the price of small linseed

(3) Defects in the present system

From what has been said above it will be clear that the at indards for the different classes of linseed differ not only as between the exporand internal markets but also between the two main trade centres of Bombay and Calcutta The standard for Bombay Bold Inseed 15 not defined by count as at Calcutta so that to ascertain whether a

patieular lot conforms to the Bombay Bold standard or not it is neces sary to employ special equipment as used by the survey departments of the trade associations in Bombay. This consists of a sieve and a bottom pain the former being fitted with an arrangement currying toution; parms to the ends of which are fitted soft brushes. These bin less bear lightly against the surface of the sieve and as the arms no revolved by means of cogs actuated by a handle the smaller grains are helped through the perforations and fall into the receive beneath After being rotated for three minutes by which time all the small inseed should have passed through the sieve leaving the bold the immount of small linseed is weighed on a chemical balance. This apparatus photographs of which are given opposite page 17 is manufactured by a well known concern in London which specialises in implements used by flour mills maltisters and the grain and seeds trade in general

The analysis results of a number of commercial samples, iccipited by trade as conforming to the Bombay Bold standard show that all linsed weighing up to 135 grams per gramme generally falls within this class. The oil content, of these samples in which the number of grains ranged from 95 to 135 grams per gramme was found to vary between 41 34 and 45 48 per cent but according to the present practice all were reskoned as of equal value irrespective of the higher or lower content of individual lots. Similarly samples of Calcutta Bold were found to vary in oil content but were paid for at the flat rate current for Bold. The oil content of samples of small linesed varied between 40 78 and 43 21; jer cent but were paid for at the flat rate current for Bold. The oil content of samples of small linesed varied between 32 58 and 43 24 but for individual samples the buyer paid no premiums or took no discounts for their higher or lower oil content.

The present system of classification therefore falls short of on of trading practice as it leaves a wide margin between the different classes of linseed and does not ensure that the highest quality obtains the highest price

B-Quality factors

(1) GENERAL

As Inseed is primarily required for the expression of oil the nam consideration is the amount of oil that can be obtained. The relation between the oil content and the size of grain has already been discussed in Chapter I. Apart from the size of grain the other factors which affect the quantity and to some extent the quility of oil obtained from linseed are the mosture content the amount and nature of impurities present and the general condition of the grain.

(2) Moisture content

The mosture content in linseed varies according to the numidity of the locality and the season of the year. The average moisture content together with maximum and minimum percentages in commercial samples from different provinces and States are given in

^{*}Average of samples from different districts

Appendix XXX from which it will be seen that the variations are comparatively limited in extent. The extreme limits for all the samples tested were 4.48 and 8.45 per cent while the variation in the average moisture content of samples from different provinces and variations are not detectable by feel or touch and the trade in practice pays little regard to this factor. The effect of storage on moisture content is discussed in the following chapter.

(3) IMPURITIES

The impurities found with linseed are of two kinds (a) hos oleaginous impurities and (b) Oleaginous impurities

(a) Non oleagmous impurities -All foreign matter such as pieces of stone lumps of earth straw or chaff wheat gram barley pulses etc are included in this category The presence of these impurities in the linseed is due partly to carelessness in kupin the threshing floors clean and in good repair * partly to the practice of sowing mixed crops and in some cases to the deliberate iddition of foreign matter The food grains most commonly found with inseed are gram and wheat owing to the practice of sowing lin eed with wheat in some parts and with gram in others Generally these grams are separated by sieving before the linseed is marketed but owing to the dearth of proper appliances and the lack of sufficient care a thorough job is not made of this operation Gram and In ed grains are comparatively easy to separate as they are of different shapes but wheat and inseed are both long grained and the brivelled or mmature grains of the former not being very different in the in a inseed pass through the sieves along with the latter practice of mixed sowing is very common in the United Provinces and it was often observed in the markets of that province part eularly in those areas in which mixed sowings predominated that the wheat offered for sale was mixed with linseed and similarly Inseed with wheat The price fetched in either case was lower thu the price of the pure grain so that by his mability or indifference to separate the two kinds of produce the grower lost on both hs

The average percentage of foreign matter found m a wple of lected from different provinces and States in India has been found to range type 10 and 8 06 per cent although individual samples and averages for different districts have shown a much wider varianghest proportion of foreign and 25 70 (Appendix XXXI) The North Bhar the average members was found in samples from North Bhar the average monther was found in samples from a samples drawn from the province and States when feed Bombay is lower than that found in sample from the areas sending linesed to Calcutta This would seen it be largely due the fact that a reciprocal contract has been in operation in Bombay for many years which entitles the seller to 1 premium if his tender is superior to the local standard basis. At Calcutt at

^{*}The tendene for the threshing floors to break up under the houres of the bullocks treading out the produce has already been referred to in Chapter IV

the other hand the basis is non mutual so that the seller stands to gain nothing by tendering goods cleaner or superior to the basis

(b) Olegonous impurities—These include oilseeds other than inseed which may be found mixed with the latter and omitionly consist of oilseeds belonging to the brassica group of which the met important are rapeseed and mustard and taiamira or jambasee! Two other oilseeds namely niger seed and cameline seed are also occasionally found in linseed. These various oilseeds are most commonly met with in the linseed grown in the United Province and Bil at and consequently are important in the refraction found at Caic tta. The presence of these oilseeds is due largely to the piac ice of mixed sowings and to some extent to the mixing with takes place accidentally on the threshing floor where all lunds of crops are threshed.

The amount of other oilseeds present in samples of inseed collected from different parts of India show great valuations (Appendix XXXXI) and it is not surprising that their proportion was found to be particularly high in those areas in which ie Biassier oilseeds are widely grown. While the samples from the Central Pioverse and Hyderibad averaged between 01 and 07 per cent those from Bihar ranged from 157 to 195 per cent. In the United I rothers the average was 0.39 per cent in the south western districts I fopper cent in the north eastern and as much as 4.27 per cent in the central tracts. The presence of these other oilseeds in links (d lowers tile drying qualities of the linseed oil by altering its chemical characteristics, since rape mustard and other oilseeds yield semi drying or noil drying of its

Another oleagmous impurity to which attention may be drawn here is castor seed. As it is customary to grow the castor plant on the boundaries of fields particularly in the United Provinces and parts of Bihar castor beans inevitably tend to find their way into the linseed In spite of the fact that easter seed is readily separable owing to its much larger size linseed with traces of castor seed does read the assembling markets this may to some extent be due to the use of old or second hand bags which at some time or other carried castor seed and in which a few beans may have been overlooked. It seems clear however that sellers do not intentionally mix castor seed with other oilseeds Any admixture of castor seed with liuseed is blyort onable as the presence of castor hus or seed even in a nall q antities renders the cake made from linseed deleterious and unlit for consumption by cattle Such cake is heavily penalised in the export markets and India has paid much too dearly for this carelessness on the carelessness of the careles the part of a few producers and merchants Since the serious conse mences arising out of this impurity are now much better known i ie position has improved so that only a stray lot or two of in seed con taining ant castor seed at all now reaches the port markets or the mills at the ports Some upcountry mills and markets however still get linseed containing this highly objectionable impu ity and at times a certain amount of accidental admixture also takes place in the godowns of those mills which crush both linseed and castor seed It

is significant that consignments of Imseed cake, which have been subject to allowances and rejections in the export markets in recent year not only in India but abroad,—have mostly originated from the I nited Provinces

(4) CONDITION DAMAGED GRAINS

Grains of linseed which become wholly or partially discoloured either before or after harvesting, as also grains which do not fully mature, yield less oil that sound grains, owing to chemical chance taking place within the seed by the hydrolysis of the glyceride. Such grains are regarded as damaged and in the trade the terms' slightly danaged' 'country danaged' touched', and 'discoloured' are variously used to indicate the extent of the damage

The amount of damaged grains present in linseed varies in different localities and seasons depending to a large extent or the conditions and period of storage. The average in the samples from ratious provinces and States was found to vary from 1:00 per form in Rapputan to 5.72 per cent in Madras. (Appendix XXXI) many progressively increase as the season advances. This will be clear from the following table showing the average proportions of damaged linseed found in a large number of samples drawn between May and September in the United Provinces.

Proportion of damaged grains in Linseed found in different months

Samples drawn in		una in aiffe	rent months
May	United Provinces	Bihar	Central Provinces
June July			2 200
August	9900	1 50%	2 29%
September	3 90%	2 40% 3 13%	2 9 %
It was also s.	4 30%	o 20%	4 70°

It was also found that owing to the susceptibility of imseed to damage by moisture the proportion of damaged grains was relative v higher in places which have a heavy rainfall

(5) VARIATIONS IN REFRACTION

The total of the non oleagmous impurities (foreign matter) and the proportion of oleagmous impurities (other oilseeds) and damaged grains which is treated as dirt (e. aliess) is known in the trade as, 'refraction'. The term is therefore not used in quite the same sense as in wheat in which "refraction" refers only to the dirt or foreign matter content

The amount of refraction varies not only in the sample, drwn from different areas but was also found to vary at the different stages of marketing Enquiries made in various provinces show that merchants consigning linseed to the port markets of Calcutta ari Bombay usually give it a preliminary cleaming by passing it over series. This is borne out by the following table giving a comparison

of the analysis results of samples collected at the ports and in the producing areas which indicate that the refraction is often much less at the ports than upcountry

Comparison of refraction found in Linseed samples collected up country and at the ports

	Foreign matter	Oilseeds other than linseed	Damaged Insced
	%	00	%
Collected in areas feeding Bombay	4 79	21	2 67
Collected at Bombay Port	2 74	10	3 16
Exported from Bombay Port	2 32	08	2 59
Collected in areas feeding Calcutta	7 25	2 08	2 87
Collected at Calcutta Port	3 15	94	2 01

It will be seen that the average of foreign matter in samples collected in the greas feeding Bombay was 4.79 per cent while the average for samples collected in Bombay itself was only 2.74 per cent Similarly the results under 'other oilseeds' soo' a decline cent Similarly the results under other hand there is a slight form 221 to 0.10 per cent on the other hand there is a slight increase in the proportion of damaged linseed from 2.67 to 3.16 per cent. This may be in part due to exposure and moisture absorbed during handling and transit and storage in Bombay where a high degree of humility prevails over the greater part of the year.

s The position at Calcutta and the areas sending lineed to Calcutta to the whole similar. The foreign matter content falls by over half from 725 to 315 per cent and "other oilseeds" from 205 to 94 per cent.

A representative selection of export samples drawn at Bombay also indicates that as a result of manipulation in shippers godowns the impurity content is still further reduced

It is evident that the linseed is subjected to a great deal of clean ing and dressing—some of it very casual—after the goods come into the hands of the pakka arhatiya upcountry and before they are erentually put on board the steamer for export* or crushed by the local mills But it is not so certain that the quality of the lineced or the condition in which it is marketed undergoes any improvement after it leaves the threshing floor and comes into the possession of the became or primary buyer Conditions were found to be extremely variable for while some producers were seen to exercise great care in the cleaning of their produce in other instances dirt and other impurities separated at the assembling markets were actually seen in the course of transportation back to the villages, presumably in order to be mixed by the beoparts and cultivators into other consignments Owing to the expansion of the oil milling industry in recent years and the tendency to relax the terms and conditions of purchasing adopted by a number of mills resulting from increased competition, instances were observed of a marked deterioration in the quality of

local supplies in markets which at one time used only to Jespatch to the ports where purchases are made on standard 'retrection guarantee" basis

C -Practice regarding sales

Sales on refraction guarantee[®] basis

The exporting firms and the large mills invariably buy linsed on what is popularly known as "retraction guarantee" basis, the two usual standards for refraction being 4 per cent and 1 per cent. The former basis is very largely adopted in Bombay and in a few instances only in some of the markets which send supplies, to that port. The allowances are mutual which means that the buyer gets paid for any refraction over 4 per cent and the seller for any lifts too under 4 per cent. This provides an incentive to tender deep produce and as has been observed, linseed at Bombay contains relatively less refraction than Calcutta linseed.

The 5 per cent basis which is non mutual is in vogue in Calcutta and is adopted by a few mills in the United Provinces and Bihar In this basis the seller pays the bujer in allowance for any refraction found over 5 per cent but does not receive a proportionate premium on tenders containing less, than 5 per cent refraction. Most of the mills in Bengal and ill the exporters purchase on the usual 5 per cent in no mutual basis but there is one large mill near Calcutta which buys on a bas swhich is mutual down to 3 per cent. Enqueries have shown that "this mill obtains supplies of linseed containing very much lower impurity content than the neighbouring mills or shippers whose purchases be ig on the non mutual basis offer no inducement to the seller to deliver really clean produce

For sales made on refraction guarantee basis a sample is drawn from the consignment and the proportion of refraction is determined by methods which will be described later in this chapter

(2) SALES ON SAMPLE.

The system of sales on sample prevails in a comparatively five markets only and probably less than one tenth of the total sales nade of imseed drawn from the consignment is sent or shown to the prepeture buyer or buyers who offer a price on the basis of ite sample found to differ the buyer has the option of rejecting the goods or accepting them with an allowance to be mutually settled

(3) SALES AFTER INSPECTION OF THE GOODS

As already indicated most of the sales in the assembling markets in producing areas are made after a visual examination of the goods. Such transactions have no definite basis for refraction and the burst takes all the quality factors into consideration when offering is price.

^{*}Refraction guarantee basis is the most common system under which goods are sold to shippers Linseed so hought is subject to analysis the price eventually paid being adjusted to the extent of the refraction found

In markets where the auction system of sale is customary, the bids are made after the goods have been seen and appraised in exactly the same way. It should be noted however that although the amount of impurities present has been taken into consideration when fixing it prize in most cases the seller still has to submit to the various deductions in kind and eash which are sanctioned by local usage and custom

(4) SALES ON FAIR AVERAGE QUALITY

Sales on fair average quality are uncommon. A small quantity of inseed only is sold on these terms in some of the markets in the Raputana States and in a few places in the Central Provinces and the United Provinces. When this procedure is employed the arhating disposes of a number of carts belonging to different sellers in one lot on the basis of the average quality of the who't. This system has little to recommend it as the seller of dirty into iro produce stands to gain at the expense of the owner of clean good quality goods

(b) Sales on contracts

Where contracts are used these fall into four categories

- (a) Mills contracts
- (b) Exporters purchasing contracts
- (c) Futures contracts and
- (d) Exporters selling contracts

(a) Mills' contracts — Purchases of linseed by the large mills are usually made on written contracts Some mills have their own contract forms while others adopt the contract forms of one or other of the trading associations Each Calcutta mill usually works on its own contract Appendix XXXIII contains a specimen of one contract form) on the other hand most of the oil mills at Bombay have adopted the terms and conditions of the Gram Merchants Associations contract (Appendix XXXIV) This is a striking evidence of the greater uniformity of trade usages at that port

These contracts invariably specify the rate paid the quantity and quality bought the basis of refraction the kind of bagging to be used the place and time of delivery the terms of payment condi tions for sampling weighment and analysis and the settlement of disputes The chief points of difference are the basis of refraction and the values applied according to the scales of allowances to the different impurities constituting refraction Other variable factors are the size of the Imseed grains accepted against tenders of Bold an I the method of weighment sampling and analysis Apart from the basis of refraction which is well established as 4 per cent mutual at Bombay and a per cent non mutual at Calcutta a comparison between the terms of the contracts of a number of associating and mills as giver in Appendix XXXII will show the extent of dissimi larity existing between the various contracts. To take a few examples while non oleaginous impurities are treated as valueless in every case the allowances applicable to oleaginous impuries are variously computed For instance other oilseeds" are recloned as lalf the value of sound linseed up to 2 and 4 per cent at Bor bay

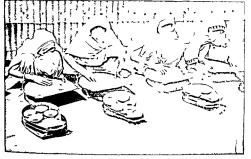
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and Calentta respectively while above these respective proportion they are regarded as valueless. The scales of allowances for d imaged grains are far more variable. At Calenta the free folerance for damaged grains in most instances is 1 per cent, while anything between 1 and 6 per cent is reckoned as all the value of ound and new 6 per cent as valueless. At Bombay, on the other hand 'tere is no free folerance, damaged grains being paid for at har value and slightly damaged at three-fourths the value of sound inneed

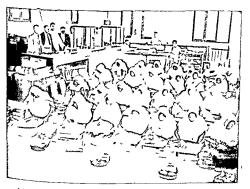
(b) Exporters' purchasing contracts—Contracts made by exporters for their purchases of linseed are similar in all fundamental although they may differ considerably in points of detail and setting out. At Bombay, shippers generally buy on the terms or refaction laid down by the Giain Merchanits' Association (a copy of the Association's contract is given in Appendix XXXIV) while at Calcutta erintract being given in Appendix XXXVIII

In common with other contracts of this type the terms stipulate the quantity and quality of linseed purchased, the crop year, the price the delivery period and the point of delivery as well as the packing and the type of bag to be used (The latter are u uali new B Twill gunnies 44 in × 26½ in weighing 2½ lb each) Conditions are also laid down entitling the buyer to reject the tender if not packed according to the contract and to repack the lot debiting the seller with repacking charges Should the containers not conform to the contract the buyers retain the option of returning them to the seller or charging an allowance The options resting with buyers in the event of sellers' failure to deliver or of short delivery or rejec tion are specified. The contracts also state the basis and scale of allowances applicable to tenders and the methods of weighment dian mg samples and analysis The terms of payment 16 by cheque currency notes or silver action to be taken in cases of insolvency and arbitration arrangements are also provided for A very important clause is that governing the presence of easter seed which generally entitles the buyer to reject the parcel or accept it with an allowance as to which buyers decision is final

(c) 'Futures' contracts—Copies of contract forms used by members of the Marwadi Chamber of Commerce Bombay and the 'falcutta Wheat and Seeds Association—the two associations in lineed is transcending a green in Appendices XXXV and XXXVII the two contracts as will be readily apparent from Appendix XXXII differ analy in respect of the basis of refraction the scales of allowances and the points of deliver. As already mentioned the Calciutta bases is per cent no mutual while that in Bombay is 4 per cent mutual At Calciutta the point of delivery is at Howrah or Kidderpore Dools himits or at railway station. In each eet months of deliver are the same 112, May and September but the units of transaction at clautita and Bombay are 10 and 25 tons respectively. The operation of these associations is dealt with more fully in Chapter IX



Scparating the different component parts in hinsed samples When separated these are placed in the small round earther dishes



A typical scene in an exporting firm's analysis department The actual analysis is done by female labour hired on a daily basis,

Facing page 133]

A TYPICAL 'KOTHI'



Note -This type of container is commonly used for storage of oil ecd and grain in many parts of India

(d) Exporters' selling contracts.—The contract used by exporters when selling linseed abrord is almost invariably the contract of the Incorporated Oil Seed Association, London This association has a standard contract form for shipments to the United Kingdom and another for shipments to the Continent. The two contracts are essentially the same with slight differences in respect of the terms govern mp payment while for sales to the Continent sellers also have the option to ship from Mormugao in which case the quality of it e inseed shipped must be equal to that shipped from Bombay A specia clause is also included in the Continental contract as a precaul on against buyers declaring the contract void should the goods on arrival not be found equal to warranties under the basis of admixture.

A summary of the contract form will be found in Appendix NVVIII and a comparison of some of its main conditions with the terms incorporated in various Indian contracts in Appendix XXXII

The most important item in which the Incorporated Oil Seed Association contract differs from those used in India is that the ban's for Indian Iniseed is "pure". For the Bombai Bold quality a free tolerance of 25 per cent small grains is allowed by the Incorporated Oil Seed Association contract whereas the local contract in Bombay allows only 10 per cent. In the case of Calcutta Bold the basis is 145 with a scale of allowance for every grain over 145 with a maximum allowance to buyer of 14 per cent.

It may be observed here that the Incorporated Oil Seed Account ton's basis for sales of La Plata linseed in Europe is 1 pc cent mutual

D —Methods of sampling and analysis

The methods employed in India as regards sampling are unything but uniform The size of the sample customary to be drawn in the assembling markets may range from a few chhatanks or a few ounces to I seer or more (over 2 lb) When linseed is sold after visual risjection of the lot, the small quantity which a prospective buver picks up from the different parts of the heap or from different bags is the only sample involved and no subsequent sampling is done For sales actually based on the samples these generally weigh anything from 1 to 2 lb and the method employed to draw such samples is to insert the hand as deep and as near the centre of the heap as possible or when the goods are bagged from a number of bags at the mutual discretion of the parties concerned These somewhat casual methods of sampling obtain in all the upcountry markets but when sales are made under contracts or under "refraction guarantee basis" as for example to mills or shippers sampling and analysis procedure s far more systematic

In Calcutta a sample of about 30 Tolas (12 13 oz) is drawn by spear (known locally as Boma) generally from 8 to 10 bags per con agument Sellers have the option to select half the number of oagsampled and buyers the other half But it was observed that sellers did not always exercise this privilege This may be due to a peeu hanty of trade usage in Calcutta which permits each bag of a lot

tendered to be first examined by the buyer's sampler before the actual refraction sample is drawn. Every bag in the consignment is eventuated and the bags containing high refraction are marked in a special way known to the person responsible for drawing simples. When the refraction samples are being drawn he makes a pout of taking his samples from the bags so marked and is therefore almost taking a sample which contains a comparatively high proper tion of impurities. The selfer on the other hand has no similar proper tion to the checking each bag and so cannot be sure of making a sile tion to his advantage.

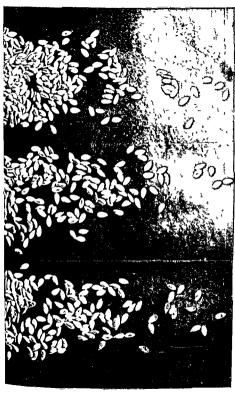
As already stated samples are drawn in Calcutta by a spear of which it wo types are commonly used. The first is a fairly narrow spar with a closed end and is used merely to examine the quality of the goods. The second is an open end spear or a hollow metal time of about 1 meh chameter tapered to a sharp point at one end use facing page 85). The latter is used only for the purpose of craving samples for actual analysis of refraction. The post is thrust sharply into the desired portion of the bag and the lassed allowed to run through the open can find a small tim or earthematagar. The samples of drawn from 8 to 10 bags is sealed both by the buver and the seller if the latter be present at the time.

Buyers usually have a special staff skilled in the drawing of samples and judging the quality of Innseed and there is no doubt that experienced samplers are able to draw samples which contain a internally greater proportion of refraction than an untrained or mexperienced person. The fact that shippers and mills employ submen on comparatively high rates of pay is in itself evidene of the skill required for this particular occupation.

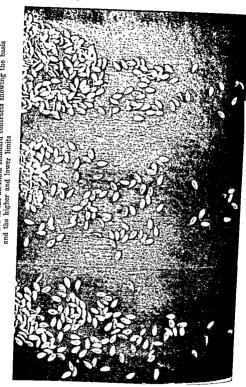
When the refraction samples have been collected they are usually taken to the office of the buy er for analysis which may sometimes let made in the presence of the seller's representative but the latter in the process of analysis. The actual separation of the impurities of the process of analysis. The actual separation of the impurities are the grains is done by women who are experienced in this type of work. (See plate facing page 132)

A typical scene in the analysing department of a large expering firm is also shown in the lower plate facing page 132

The sample is first run through a set of sieves in order to spatiate duri foreign matter and other colseeds. These are all careful picked over be hand. A small quantity is then taken out from the cleened sample and every individual gram closely examined for spatially damaged. Those so affected are set asade according as whell of the transple having been split up into its various component partially. The sample having been split up into its various component set is ber of the butting firm's staff who then weights each feelor on a child all and the sample having firm's staff who then weights each feelor on a child all and the sample of the sample having firm's staff who then weights each feelor on a child all and the sample of the sampl



The grains in the illustration represent the actual size



The grains in the illustration represent the actual size.

In Bombay the method of sampling is different. It is usual for 10 bags to be selected out of each consignment. The page are so arranged that every alternate bag stands vertically with the mouth upwards while the intervening bags are laid on their sides horizontally with one seam uppermost (See plate facing page 99) The seams and the mouths of the bags are cut open and 3 handfuls of sample of drawing samples by the surveyor, appointed for the purpose is as follows -From the first two bags samples are drawn by the buyer s surveyor and from the next two bags by the seller's surveyor. In this manner samples are drawn alternatively from b bags. The 9th bag which is usually lying horizonfilly is sampled by the buver s surveyor and the 10th or vertical bag by the seller's surveyor actual drawing of the sample when the survey takes place is different from the normal procedure The buyer a surveyor samples the bags by thrusting his arm upto the elbow, into the produce and stirs the haseed with a circular motion performed 5 times in the same direct tion or rotation The hand is then cupped and the arm withdrawn, bringing with it a certain amount of linseed The seller's surveyor merely samples the upper part of the produce and inserts his hand only up to about the wrist A sample of linseed drawn in this manner is required by the rules to be not less than 140 tolas (really 24 lb) The sample is now placed in an earthen pot or jar and sealed by both the parties. The actual analysis is done by female labour on much the same lines as at Calcutta except that n order to ascertain the proportion of small grains the special apparatus to which reference has already been made earlier in this chapter is used It should be mentioned that the brushes with which this analysing device is fitted are rotated only for 3 minutes

The absence of uniformity in the methods employed in fraving samples and in analysing them mentably results in a lack of comparability in analysis results. Under the present conditions it is impossible to compare the results of analysis made at Calcuta with those at Bombay, in the first place because the size of the samples drawn at these two markets is not the same secondly because the methods of drawing the samples are different and thirdly because the procedure in making the analysis, lacks uniformity.

As the true grade of a given parcel of oilseeds or grain, or indeed of any other kind of agricultural commodity can only be savertained by channed as a representative sample and by following an unifoun method of analysis it seems desirable that both the me hods of singling and analysis be standardised? as well as the appratus used for the purpose of actually making the determination. It is also executal that the various factors in the sample for example damaged grain should be more clearly defined than is the case at present What would be regarded as a slightly damaged grain in Calciutta with the control of the purpose of the conditions be classified as wholly damaged grain in Galentia and the present conditions be classified as wholly damaged in Bombay This dissimilarity of treatment does not necessarily

Experiments conducted by the Central Marketing Staff indicate that an nies drawn by secon (see place freing pige 8.0) give the most consistent as recarding refreshing.

exist only at the ports but also in all upcountry centres at the solvious that as long as these factors lack clear and precise definitions, the nalysis results will be open to doubt and negotiation and the cultivator continue to receive less for his produce than should be the case.

E-Standardisation

It will be clear from what has already been said in this chapter that the terms of the contracts used in the trade vary from market to market and reflect the conditions of trading which are far from uniform throughout the country. Owing to these various axes it is impossible to compare the prices riding in the different aarkets of India. With a view to eliminating these anomalies and in order to ensure a price for linseed commensurate with its oil contect as far as possible the following standards for Bold and Small linseed based of the number of grains per gramme⁶ with a system of mutual sliding scales of allowances for the number of grains more or less than the basis were finally approved by the grain and oilseeds trade associations and the oil milling industry after discussions with the Centual Verleting staff in 1937 and 1938.

Bold Lansed — Bass 125 grains per gramme with mutual allowances to buver or seller respectively, for every gram more or less than 120 grains per gramme at 0.12 per cent of the contract price with a maximum allow ance of 3 per cent to the buyer and 1.5 per cent to the seller Buyers to have the option to reject if the tender contains more than 145 grains per gramme.

Small Lanseed—Basis 160 grains per gramme with mutual allowances to buyer or seller respectively for every grain more or less than 120 grains per gramme at 015 per cent of the contract price with a maximum allow ance of 45 per cent of the contract price to the buyer and 220 per cent to the seller

According to this scale the extreme limits for Bold linseed would be between 105 and 145 grains and for Small linseed between 145 and 190 grains (See plates facing pages 134 and 135) The premium for Bold ceases at 105 grains and the discount for Small at 190 the discream facing page examination es. that the rise in oil content which accompanies the merease in the size of the grain se a lesser number of grains per gramme, does not continue after 105 grains while the diminution in the oil content is not marked when the grains become smaller and exceed 190 This scale of allowance therefore covers a range which embraces the great bull of the produce which comes on to the markets and it is hoped that when this is brought into effect the price of linseed will bear a closer relationship to its oil content and the producers will The manufac get a better premium for quality than at present tuners will at the same time be able to reckon their raw material costs with a greater degree of precision

^{*}The equivalent number of grains for Bold and Small types may be stated in terms of the Tola (1 __ 1166 grains)

The other terms of the Contract as approved are as follows

Refraction* Basis

4 per cent with mutual allowances up to 9 per cent Over 9 per cent cleaning charges to be paid by seller at Rs 380 per 100 bags plus allowance at full value

Foreign matter (dirt dead seeds and all non cleaginous impurities)

To be treated as dirt, se valueless and in cluded in refraction

Other oilsteds (oleagenous empurities)

Oilseeds other than linseed (except castor seed) to be reckoned as half dut up to 2 per cent and full dirt over 2 per cent. Castor seed to be treated as dirt

Damaged seeds (externally and unter nally discoloured)

Up to 6 per cent to be reckoned as half dirt over 6 per cent to 8 per cent at three fourth dut and over 8 per cent as full durt-

Slightly damaged or touched seeds (ex ternally discoloured) Unit of quotation

futures

I per cent free Any excess to be reckoned as one fourth dirt Per maund of 82 2/7 lb

Minimum unit of transactions for

New B Twill bags (21 lb) 500 maunds (Except for Calcutta where the minimum unit is 250 maunds)

Delivery months for futures trans May and September actions

It was also decided that the All India Standard Contract for linseed be put into force for the crop of 1938 39 and that all contracts entered into for May 1939-and subsequent nonths-should be based on the terms of the Standard Contract. The proceedings of the informal conference which took place ir April 1938 have been circulated and the latest available informa ton indicates that a number of associations are taling the necessary viene to modify their contracts in conformity with the terms of the All India Standard Contract

Refraction includes dirt and that proportion of other oilseeds and damaged and slightly dan aged seeds which is treated as dirt

INTER-CHAPTER SIX

It is a sad commentary on our marketing methods in India that many people firmly believe duit and dishonesty to be paying propositions. It is still more unfortunate that as matters stand at present so many of these people are right. Some producers exercise great care in cleaning their linseed but on the other hand beoparis have been observed earting duit and other impurities screened from the product in the assembling market back to the villages to be mixed in again with other lots. They would not do anything so about dunless they found that it paid. As a flist step towards getting, the producer better prices it is, therefore, necessary to get hid of these factors which lend to a lowering of the quality of his produce and in increase in the cost of distribution.

The question of impurities needs to be tackled first. These are of two kinds, viz non oleagmous impurities consisting of foleign matter such as straw, chaff, earth and grains of wheat, grain, etc., and oleagmous impurities in the form of other oilseeds such as mustard and rapeseed, castor seed, etc. All these impurities are lumped together under the term "lefraction" but in the case of hisseed, refraction includes the total foreign matter and the proportion of the other oilseeds and dauged grains which beyond a certain point are recorded as durface, of no value.

The presence of dut is obviously objectionable but the harmful effects of the presence of other oilseeds with linseed should be recognised. A very small percentage of mustard and rapeseed, for example seriously affects the drying qualities of linseed oil, while it has already been observed that the presence of castor seed husk makes the cake in some cases almost unsaleable

The average amount of foreign matter found m samples collected from different provinces and States ranges from 1½ to over 8 per cent (in Bihai) although individual samples drawn from certain districts show a much wider variation and the amount of refraction may even be more than 25 per cent. The proportion of other obseeds present in the southern areas is low particularly so in the Central Provinces and Hyderabad, but ranges in the United Provinces from less than half to more than 2 per cent in different tracts.

The amount of damaged linseed in the beginning of the season which is about 1½ per cent in Bihar in June, apparently increases as the season advances up to about 4 or 5 per cent in some cases, depending on the extent to which it has been exposed to damage by water in the course of transit and storage

The total arrount of refraction therefore varies from place to place ard from time to time but—particularly in those areas where the refraction is high—the amount present is capable of a considerable amount of control It is evidently necessary to enquire why the amount of refraction is not suitably controlled and reduced One striking fact stands out, namely, that in the areas serv ing Calcutta the amount of dirt and foreign matter present is over 50 per cent greater than in those areas which supply B mbay, and further the amount of oil seeds present is ten times greater. The fact that mixed sowings are more prevalent in the former area is not a sufficient explaration of these figures, since in some areas Serving Bombay the proportion of duit ought to be higher owing to the methods of harvesting in vogue It would, perhaps, be more correct and more logical to say that the reason for the large amount of dirt loaded for the Calcutta market, is due to the fact that most of the trade there has hitherto been worked on a contract which allows 5 per cent refraction as against 4 per cent. in Bombay, but what is more in portant is that in Calcutta the terms are non mutual whereas in Bombay they are reciprocal and

sellers delivering linseed cleaner than the basis are en titled to claim a premium

It seems clear that anyone selling linseed on the basis of the Calcutta terms would be merely stupid unless lie took care to ensure that the amount of refraction exceeded the basic 5 per cent. There is, therefore, ample justification for lowering the basis of refraction permissible throughout the whole of India and making the terms mutual and recipiocal in every case.

Having ensured that clean seed obtains an adequate premium as compared with dirty seed the next step is to secure a premium for high quality linseed over low quanty It has already been observed, when discussing prices, that Bold linseed does not command a price over Small linseed commensurate with its higher oil content This is perhaps partly due to the fact that the trade make, at present, no clearly defined distinction between Bold and Small seed Tenders of linseed langing from 146 to 153 grains per gramme are accepted against Calcutta Bold contracts and the Incorporated Oil Seed Associa tion of London uses as a basis 145 grains per gramme The count system is not used for defining Bombay Bold but an examination of samples indicates that linseed weighing up to 135 grains per gramme generally falls in this class The oil content of these different type varies In the case of Bombay Bold it ranges from 41 to 451 per cent but for Calcutta Bold the maximum is about 431 per cent, and the oil content of Calcutta Small langes somewhere between 381 and 431 per cent The practice in reguld to classifying linseed is very variable both in India and abroad and it is essential that there should be some standard system adopted At the same time it would also be necessary to arrive at some uniform system of drawing samples from bulk in order to deter mile the class of linseed and the amount of refraction present The sampling methods adopted at present in

different places give lise to varying errors and it would be more appropriate to have a uniform system of sanpling so that the amount of error would also be uniform and carable of calculation

Discussions which have already taken place between the Central Marketing Staff and the interests concerned, show that manufacturers and the trade are alive to the desirability and necessity of adopting the principle of standardisation, and as a result of these deliberations a system of classification and standard contract terms have been agreed upon, which may be summarised roughly as follows.

The dividing line between Bold and Small linseed should be 145 grains per gramme, but the basis for Bold should be 125 and for Small 160 grains per gramme, with a scale of mutual allowances to buyer and seller respectively for every grain more or less than the basis at the late of 0.15 per cent of the contract price so as to correlate the price of the linseed with its oil content. Maximum and minimum allowances are provided for in each case owing to the fact that the increase or decrease in oil content accompanying the size of the grain holds only within certain limits.

Apart from the definition of the different classes the other terms of the approved standard contract provide for a reflaction basis of 4 per cent with mutual allowances up to 9 per cent, and beyond this limit, for the cleaning charges to be borne by the seller

The other terms of the contract specify that prices shall be quoted on the basis of the manud (82-2|7 lb) and that the minimum unit of transaction for "futures" should be 500 maunds (excepting 250 maunds at Calcutta) with May and September as the delivery months

When the approved standard contract is adopted and generally applied throughout India, it is anticipated that the producers will secure for their produce a premium commensurate with quality, and at the same time the incentive to adulterate linseed with dirt will be removed and the 118ks and costs of distribution would be minimised, not only for the benefit of producers but of the traders and manufacturers as well

CHAPTER VII -CONSERVATION

A —Methods of storage in different provinces and States in India

Bloadly spealing the methods of storing linseed in India are small to those adopted for other agricultural commodities. The only differences are those of detail. Linseed is not subject to weevil attack as is the case with food grains. The present survey has however hown that less attention is paid to storage arrangements for linseed than for wheat.

(1) IN VII LAGES

(a) By cultivators —Cultivators do not generally retain stocks of Inseed beyond their requirements of seed. These supplies are as a rule stored in bulk in earthen jars or pots or in other I indis of home made receptacles made of wicker worf et which are either portable of fatures in some part of the house. The opening through which the sent is mitroduced is subsequently closed after the seed has been filled and made fairly airtight by plastering the joint with mid. Where the material from which they are made is fairly non porous this form of storage appears to be quite satisfactory particularly where care has been exercised in their manufacture and the mouth are scaled against moisture.

The capacity and shapes of these receptacles vary and they act Luown by different vernacular names which have already been described at some length in the Report on the Marleting of Wheat in India These may be summarised below —

Achtas kothalas or bharotis—are terms variously applied to large rase chaped receptacles made of mud (See plate facing pa. 133). These are kept in a corner of the house their capacities varying from about 2 to 40 maunds. This type of container is found all over the Chined Provinces Bihar the Central Provinces Rajputana and ta Central India States.

I otnas—These are similar to hothis but are made from a kind of wicker work of rice straw and contain from 2 to 3 maunds hisseed. This form of storage is encountered in the Central Provinces.

Splits plastered with mud and are erected in the open supported on a bamboo or wooden platform about 1½ to 2 feet above the ground level They are also thatched on top to protect the contents from an The dimmutive dholi is used to denote a small sized didaa. This type of storage is peculiar to Assem

boundas—are shallow dug-outs constructed half abo e and half below the ground situated wherever possible on elevated land. They are found in the northern division of the Central Provinces and are generally lined with burnt brick or ordinary mud masonry. A lining of llva (straw) is always laid our the bottom and along the s dos to broteet the produce from damp

Pauroos.—These are similar to the bharolis referred to earlies but made of interwoven bamboo strips plastered with a mixture of mud and eow dung. This type of storage prevails in the Kangra district of the Punjab

Dools and mochas —The former are made of bamboo strips and the atter of rice straw. Their capacities range between 10 and 50 maunds and they are found in Assam.

In addition to the receptacles mentioned above baskets and empty kerosene oil tins are also used for storing small quantities of linseed in Bombay and Assam

Although as noted the greater portion of their linseed is stored to the cultivators in bulk, bags are quite commonly used in Bergal and Madras and occasionally in the Central Provinces, Hyderabad and Bombay

(b) By landlords and village merchants — Landlords and large cultivators store a certain amount of linseed either for lending out as seed or for sale to the owners of village ghants or holhus, known gructually as telus* Village merchants also retain some of the linseed bought by them or collected from the producers in repay ment of advances etc. This class of trader stores either in bulk in the larger or in bags. It was found however that out the whole bag storage was favoured owing to the greater convenience of landling small quantities to packed.

Where koths are used for bulk storage as in the United I to incuse and Bihar some may have a capacity of as much as 1000 maineds but these are rarely encountered in the villages Occa storally an improvement is effected by placing the bottom of the receptiacle about 18 m above floor level thus providing an air vilage be stored but 18 m above floor level thus providing an air vilage be stored in bulk in rooms called kothas. These usually aw my aveil floors on which bluss (straw) is spread for protection A tarryl large quantity of inseed is stored in this manner in the villages of Bihar.

Where linseed is stored in bags these are stacked in any content sheltered spot but preferably in rooms or godowns with takehed tiled or masony roofs. The floors of such accommoda by ullage merchants is almost entirely in bags while in the United Provinces Bihar Orissa and the Central Provinces both bulk and bag storage is employed the latter being preferred.

(2) In markets

As most of the innseed erop moves to the markets within two or three months of harvesting the conditions of storage in small assembling markets are of great importance

^{*}Telis-The word derives from tel meaning oil and is applied to both oil crushers and dealers

Unlike wheat linseed is not stored in deep underground pits (k¹tits) but in the rooms of dwelling houses or in godowns. In the smaller mail ets the floors of the godowns are generally unpaved or overlaid with briels occasionally plastered with lime and the roofs are either tiled or of masonry. The bags are stacked on old railway sleepers plants of wood or old pieces of gunnies to avoid direct contact with the floor. In the large town markets storage accommodation is better the godowns having cement floors and masonry or corrugated iron roofs.

Both bulk and bug storage are practised in the assembling markets the quantity of linseed so stored varying in different places according to local usage. For example linseed is generally stored in bulk in the southern districts of the United Provinces eg. Jalaun where about 80 per cent of crop retained is stored in bulk. In the north eastern districts of Gorakhpur and Gonda linseed is stored impair tally both loose and in bags but in Basti. Ghazipur Ballia and Azamgarh bag storage is favoured. Broadly spealing it may be red oned that about 50 per cent of the linseed stored in the assembling markets in this province is kept in bulk.

In Assam Bengal Bihar Orissa the Central Provinces and Bombay storage is generally done in bags while in Rapputana and in the Central India States of Gwallor Indore etc bulk storage is more common. In Hyderabad bulk storage is practised to the extent of 70 per cent of the linseed stored.

On an average at may be estimated that between 50 and 60 per cent of the lineed stored in the upcountry markets is in bulk

(3) AT MILLS

A few mills carry considerable stocks of bagged linseed such purchases being made when supplies are abundant and cheap (see bage 84 and the diagram facing the same page) On arrival the different lots of linseed are piled as far as practicable in separate stack from 6 to 10 bags high. After weighnent and delivery the bags are removed and re stacked 10 to 15 high in the mills godowns. As agastorage facultates the keeping of records bulk storage is av ided and is resorted to only occasionally to economise space when stocks are large. Some of the large oil mills have considerable storage accommodation in some cases amounting to as much as 8 000 to 19 000 tons. In such mills storage conditions are good but in the majority of instances storage arrangements are not so satisfactory.

(4) AT PORTS

Linseed is invaluably stored in bags at Calcutta and Bombay the two main ports receiving linseed from the interior and at Vizagapatam to which relatively small supplies are consigned mainly from the Central Provinces

At Calcutta all classes of oilseeds and food grains which are booked to the docks are unloaded in the general sheds at Kantapuker unless consigned to a particular shipment shed alongside a loading vessel A number of sheds at Kantapuker are specially allocated for

linseed This locality holds larger stocks of linseed than any other po nt of arrival in Calcutta and is therefore the centre of the whole sale trade so far as the actual handling of the goods is concerned A large number of godowns here are owned by the Port Commissioners, Culcutta These warehouses are closed on all sides with corrugated iron sheets and are roofed with the same material have cement floors and are divided by pillars into bays of about 1 000 square feet floor area Between 65 and 70 tons can be con veniently stored in each bay when the bags are piled 7 high and double that quantity when stacked 14 or 15 high The total storage capacity at Kantapuker is about 50 000 tons of which portions are rented out to exporters and other merchants as required The amount of space so rented varies considerably from year to year according to the demand A facility offered by the Port Commissioners in connection with the renting of these godowns is that wagons consigned to merchants or shippers occupying rented space are placed alongside the appropriate sections of the sheds

A large proportion of the linseed stored in Kantapuker is destined for the export market. The Calcutta mills obtain their supples from this point only very occasionally and the quantities so taken are comparatively small.

In addition to the sheds at Kantapuker storage accommodation is available at the King George Docks and the Garden Reach Jetties but little if any linseed is stored at these places

The East Indian Railway has lately provided storage accommodation for grams and seeds to merchants on the first floor of the goodssheds at Howard Station. The floor area of the accommodation made available is 22 560 square feet.

At Bombay the Port Trust has transit sheds and warehouses in the docks themselves and has provided godown accommodation at various places on the land owned by it as for example the Rvan Gran Market the Grain Depot Mazgaon and the warehouse at Mandvi. The greater proportion of the grains and seeds stocked in Bombay is located in the godowns in the Ryan Grain Market more popularly known as Dana Bunder (dana—grain). The Dana Bunder Market and the Grain Depot Vargaon have the godowns are roofed and enclosed with corrugated iron sheets and merchants and exporters. A number of outside godowns in the while others again in different areas are rented by these parties fror

B-Cost of storage

(1) IN VILLAGES

Storage in the villages as already mentioned takes place in the dwelling houses of the cultivators or village merchants. The receptacles used are generally home made at a nominal cost if however labour were to be employed for the purpose and the material.

purchased, the cost for a *kothi* designed to contain about 40 maunds would be about Rs 5 or Rs 6 Such a container would ordinarily 'ist for several years if removated at the beginning of each season

(2) IN MARKETS

The cost of storage in the markets varies within wide limits As a rule the cost is lower in the small assembling markets than in the large centres situated in or near important towns. This is due to the fact that rents as well as labour charges are cheaper away trem populous or congested areas. The various charges made in the different areas are as follows In Bihar, godown rent is normally marged at the rate of about Rs 1-40 per hundred bags per month This works out at rather more than I pie per maund per month In the United Provinces the rate is practically the same Nagpur, in the Central Provinces, the charge made by arkatiyas, when debiting their clients for this item, is 6 pies per bag per mei th wh n is equal to about 21 pies per maund per month. As it may be assumed that this charge includes a margin for the arhatiya the actual cost is probably somewhere between 14 pies and 2 pies per maund per month At Indore, in Central India, the customary rate is Rs 2 per hundred bags per month which is a little less than 2 pies per maund per month At a number of other markets in Central India such as at Bina, and in the state of Dewas Senior, the charge is relatively small and amounts to 1 pie per maund per month In Bombay, the average for a number of assembling markets indicates a charge of 3 p es per bag per month which having regard to the average capacity of a bag works out to about 11 pies per maund per month In Hyderabad, the cost of storage in the produc ing areas is about the same

It would appear, therefore that in most cases godown rent upcountry is somewhere in the neighbourhood of Re 1 per hundred bags per month or 1 pie per maund per month although in many cass it ranges as high as 2 pies or 3 pies per maund per month

(3) AT MILLS

Where outside storage accommodation is engaged rents vary with the locality. It was ascertained that the average rents paid are in the vicinity of 3 pies per bag per month which is equivalent to about 1½ pies per maund per month.

(4) AT PORTS.

At Calcutta, the rent charged by the Port Commissioners for storage in the general sheds in Kantapuker is on the following scale.

From the 1st to the 4th week ... 3 annas per ton or part thereof per week or part of a week.

From the 9th and subsequent weeks

Normally, shed accommodation is leased out at the rate of Rs 60

Per 1,000 square feet per month but a reduction may be given for large bookings of soase At this rate the charge works out

L137ICAR

to rather less than 6 pies per maund per month if the goods are piled 7 high and about half that amount if stacked 14 or 15 high as is eastomary when stocks become large. Storage accommodation at Howrin goods sheds may be hired at the rate of Re 0.39 per square foot per annum. The rent charged to their clients by ordatijas or con m ssrin a₆cns to the city is usually at the flat rate of Re 0.19 per bag per mount i.e., a little over 5 pies per maund per month.

At Bombay the ground tent charges in the Port Authority Is 70 per 300 square feet per n outh while the rent for open varia and open sheds—in which incidentally inseed is seldom stored—is 40 The former works out to nearly ke 0 3 0 per maind per Re 0 1 6 if piled 14 or 15 high

A free period of 7 days is allowed on Inseed intended for export after which a cuttar charge is levied at half the wharfage fee for every three days or part thereof. Wharfage charges in the case of Inseed (imported or exported) is Re 120 days or not if linsed stored in the transit sheds is not shapped but removed from the docking a constant of the control of the c

(5) COSTS ABROAD

A precise comparison of the costs of storage in India with those in other producing countries eg Argentina the United States of America and Canada is not possible because conditions there are widely different from those in India In those countries bulk handling and storage is far more common than in India where storage handling and transportation are done to a greater extent in bags. In the United Kingdom one of the principal linesed consuming countries shipments of linseed which are not directly taken into the mill are sometimes stored in Port Authority warehouses whence they are railed to the mills at the latters' convenience According to the latest available information the charge for storage at port warehouses in the United Kingdom is on an average id per ton per week but when rented to merchants on a long term basis or per annum the charge is reduced to about 2d per ton per week This is not far different to from the charge made for Port Comm's sioners sheds at Calcutta but is less than half the rent levied et Bombay

C-Effect of storage on quality

Linseed is not subject to weevil attack and if adequately protected from mosture and damp it can be stored for a considerable it me without deterioration. The ideal conditions are those when it is cool and dry. Experiments have indicated that a hot hund atmosphere tends to increase the amount of free fatty acids. Rain water leaking from defective roofs causes much damage each season.

the precise extent of which is impossible to assess particularly in the upcountry markets of Bengal Bihar and the east of the United Provinces where the rainfall is comparatively heavy and the storage accommodation appears to be comparatively insubstantial and insufficiently weather proof. Linseed contained in he ome wet forms into lumps talles on a darler shade and emits a musty odour

The importance of having damp proof floors cannot be over emphasised Where the floors are unpaved the damp rising through affects the bottom laver of the bags in the stack unless it is resting on sleepers or away from direct contact with the ground Damp eauses the bags to rot weal en and burst alloving the line I to run out ove the floor In Calcutta for instance it was obser ed that af er 6 months storage a number of bags in the bottom layers of many stacks had burst partly owing to the pressure of the bags above and parily to damp although the floors were of cement

Generally speaking linseed does not appreciably deteriorate in quality after 8 or 9 months storage or even after a year provided storage conditions are satisfactory and the linseed when originally pathed was sound and dry When newly harvested linsee! has a high sheen and is light brown in colour With the lapse of time however the gloss tends to disappear the seed becomes darker and the oil content decreases After about a year or 18 months the thange in colour is so gradual as to male it difficult to distinguish lin eed stored for one year or so from linseed stored toi 2 or 3 years The oil content is only affected to some extent after storage of say not less than 9 months or a year

Just after the new crop makes its appearance old linseed left over from the previous season is rarely bought at the same price ds new crop if tendered separately early in the season. The reduction in price naturally varies but instances were observed in which the discount ranged from 6 pies to 1 anna per maund. In order to avoid this and owing to the fact that newly harvested linseed can very easily be distinguished from the previous crop owing to its brighter lustre and rather lighter colour it is not customary for old crop to be mixed with new To do so would be to invite irmediate detection Accordingly therefore sellers usually wait for three or four months after the new crop has been on the mariet before attempting to mix old with new linseed by which time the ongual lustre of the new season's linseed has to some extent dis appeared and the seed is on the whole rather darker than it was in tarch or April and differs in appearance very little if at all from Inseed which has been stored from the previous season This ecounts for the acceptance normally of any linseed which is sound and without marked discolouration

The imposition of a penalty of the acceptance of the ac or the rejection of a lot is only exercised if the goods are very inferior

It is a fact however that under present storage conditions the oil content is generally found to be about I per cent less after the first year's storage and to diminish more rapidly in subsequent A sample taken from a lot of linseed stored for about 10 L137ICAR

years in a village of the Jalaun district in the United Provinces was analysed and found to contain 3044 per cent oil only The normal oil content of the linseed grown in this area is about 42 or 43 per cent

Lunseed contains a certain amount of moisture at all times As supplies come on to the markets during a dix hot period of the year, the seed tends to lose weight as compared with the time of harvest owing to the evaporation of a part of the inherent moisture Con signments of linseed are largely on the move from up country markets to the ports between March and June Enclosed in covered wagon and exposed to the sun on the way, the linseed within the wagon is subjected to considerable heat and it is estimated by practical men in the trade that the loss, from the time the seed is harvested to the time it reaches the port in May or June, is somewhere about 1 per When the monsoon sets in, the temperature falls and the humidity increases so that the weight which has been lost between April and June is usually more than made up from July to the end of the monsoon in September The effect of the natural humidity of the atmosphere on the weight of the linseed is fully appreciated by traders This is clearly shown by the fact that both buvers and sellers defer or insist upon weighment according to whether the weather is wet or fine When the rains are over the increase in weight ceases and in the autumn months immediately succeeding monsoon a portion of the weight gained earlier is lost To some extent this is regained in the winter period, as will be seen from the following table To what extent the data quoted were affected by conditions at Cawnpore where the determinations were made, or by any special erreumstances is impossible to say, but obviously, variations in weight must largely depend upon the locality and vary with weather conditions

The following table shows the results of moisture content determinations on 12 samples of linseed between November 1935 and August 1936 The samples were kept in thin cloth bags during the interval between the tests

Percentage of moisture in Lanseed as determined on certain dates

	On		acres manete by	· CEITERIFICA.
	15th November 1935	On 22nd February 1936	On 30th June 1936	On 18th August 1936
A B C D E F G H I J K L Average	4 96 5 24 5 14 5 65 5 65 5 48 5 523 5 49 5 16 5 12 8 29	6 12 6 26 5 89 6 76 6 48 6 47 6 82 6 01 6 78 6 12 6 02 6 02 6 03	5 28 5 74 6 05 5 78 6 25 5 76 6 28 5 95 6 20 6 20 6 22 5 91	7 24 7 91 7 07 8 30 7 51 7 95 8 16 7 59 7 75 7 49 7 48 7 57
	Gain 1)? Loss		1 63

It will be observed that on an average the percentage of mosture search by 103 per cent between November and February, decreased by 038 per cent between February and June and rose again by 163 per cent during July and August The increase in mosture content must be appreciable less when the seed is handled in larger commercial units since the area exposed to the atmosphere is smaller than when dealing with small samples It is, however, clear that the weight of linseed is susceptible to atmosphere changes and that this must be allowed for in the course of trade

It has already been pointed out that linseed is not subject to werd attack. On the other hand, a great deal of damage is caused by raits, by floods and by rain. Rats are known to cause much destruction and loss to stocks. Estimates from a number of sources all pointed to a maximum loss of about 3 per cent in a season. On this basis a very conservative estimate of the wastage for the whole rop would seem to be somewhere in the neighbourhood of 1 or 15 per cent. In the port centres such as Calcutta and Bombay rodents are a great nuisance and their destruction by injections of cyanide gas into all rat holes found on the dock premises, occupies the whole time attention of staff employed by the Port Authorities. From time to time outbreaks of plague bring about spasmodic campaigns for the destruction of ratis but no systematic action is taken in this respect as is done in the United Kingdom and other western countries.

The extent of damage by floods cannot be estimated. These disasters occur from time to time and it is unfortunate that large lussed producing areas are located in comparatively low lying tracts subject to periodical flooding.

The effect of rain has already been referred to earlier in this chapter Here again the extent of loss by ineffective storage accommodation tannot be assessed with accuracy The amount of damage caused by moisture and dampness during storage and transit may be very roughly estimated from the proportion of damaged Inseed found in the produce of different districts Although the presence of defective grains may be partly due to crop damage or damage during the harvesting period it appears to be mostly caused during storage and transportation The fact that the proportion of damaged linseed is found to be higher in samples collected from merchants than in samples collected from producers and still higher in samples drawn at ports, leads to the conclusion that the amount of damaged buseed increases as the produce moves from the grower to the terminal market the greatest increase taking place during transit and storage As a rule, the proportion of damaged grains is higher in the storage and storage and storage as the proportion of damaged grains is higher in the produce deriving from areas of heavy rainfall For example, a number of samples from Rajputana were found to average 16 per cent in respect of damaged grains whereas in parts of the United Provinces the average was as much as 45 per cent

Having regard to the current scales of allowances for damaged grain in linseed which treat damaged linseed as half the value of sound, the net deductions for this factor may be reckoned as 1 per

cent On this basis it would appear that a loss of not less than Rs 5 lakhs was suffered by sellers on the 3,67,000 tons of linesed which were annually exported and consumed by the power mills during 1934 35 to 1936 37. No account is taken in the above figure of the quantity and value of badly damaged or dead grains which are treated as valueless and added to the allowance for dirt.

D—Comparison between bulk and bag storage

A comparison between the merits of bulk and bag storage can best be done where both methods of conservation are practised on a "arge scale at a common centre. Such indeed are the conditions in the wheat trade but not as regards linseed where systematic storage for the purposes of investment is on a comparatively small scale and is confined mainly to Calcutta and Bombay where there are terminal markets in which ledging 'facilities are available. In these ports linseed is invariably stored in bags as received from the interior. It is not possible therefore to compare bulk and bag storage in the same detailed manner as was done in the Report on the 'Ireketing of Wheat in India.

Other things being equal bulk storage should work out cheaper than storage in bags as a large quantity of Imseed can be accommodated rathin a given space. Moreover depreciation of the con tainers is eliminated. It is also claimed by a section of the trade that bulk storage leeps the linseed in better condition as only a relatively small portion of the heap is in direct contact with the air and is accordingly less affected by atmospheric changes. With bag storage the area exposed to the air is much larger and as the inter space between the bags permit the free circulation of air moisture is absorbed in wet weather and conversely more given off when very dry conditions prevail. Apart therefore from the greater fluctuation, in weight implicit in bag storage there seems to be little to choose between the 'wo systems and in this respect hisseed bears a mailed contrast to wheat for example which is liable to weevil attack the losses arising therefrom being much greater when bag storage is employed It was shown in the Report on the Market ing of Wheat in India that mainty on account of the weevil loss Aothe storage in bags was almost two and a half times as costly a bulk storgee in Lacheha outs and nearly four times dearer than storage in the new type of underground concrete bins at Muzaffar nagar (United Provinces)

When linseed is brought to the market by producers and village merchants it arrives both in bulk and bigs. Ordinarily the quality of individual lots in the same market differ only in regard to the anount of impurity content. Consequently it would not be impossible for arrivals to be bulled mixed cleaned and eventually stored in bulk at assembling centres up country. In the case of food grains the magnitude of the retail trade makes bag storage necessary at many points—if only for the sale of convenience in handling the small lots which are involved. Such considerations however, do not affect linseed since the refail trade is quite negligible. It seems

possible therefore that if facilities for bulk storage were to be provided in the assembling markets in the shape of suitably designed damp proof structures linseed could be conveniently kept with much greater safety than at present The goods could be put in bags when required for despatch to ports or mills as transport to ports in bulk would present serious difficulties. A large proportion of the linseed producing areas in United Provinces and Bihar is served only by a metre gauge line and as the flow of supplies is largely to Calcutta transhipment is necessary Transhipment of hiseed in bilk would require very great care owing to its physical characteristics which cause it to 'run' very easily It would also be necessary o make changes in existing rolling stock to make them fit for bulk trunsport. This would be a costly undertaling and would neces arily have to synchronise with the development of bull storage and handling facilitie at the ports. Under present conditions such changes are not indicated

E-Storage costs in relation to seasonal fluctuations in prices

It has already been observed that the rutes ruline in Calcutta and Bombav are the key prices for the linead trade in India and hat fluctuations in other interior mariets depend largely on the course of values at these two large centres. Generally speaking there is a pronounced decline immediately after the harvest with a susquent rie which culminates in a peak in August September along in occa ional seasons as for e ample 1931 3? the price level during August September via lower than in April. The holding of stocas against this seasonal rise is not only under along at the producing areas but also at the ports with all the greater proportion of the avulable supplies up country has been drawn down to the ports by September and at times large quantities may be tendered against the September option.

The cost of storing which is such an important factor in determining the post harvest prices of certain agricultural commodities such as for example wheat does not appear to play such a large part in the linseed trade in which prices are to a large extent Severned by the export markets and influenced by the prospects of the Argentine crop and the size of the exportable surplus in that country I twill be seen from Appendix XXXIX that the lolder of linseed from April to August September during each of the past 7 lears would have shown a net gain on four occasions and a net loss in three both at Calcitta and Bombay.

From September onwards the only futures contract open for bedging is for new erop in the following Vlav and the course of ta use bears no relation to the cost of conservation so that the earry in, of linesed up to December January by which time the Argentine from begins to come on the market shows a net loss which if Shall is envertheless significant in all intervening years excepting east Calcutta only. The occasion referred to occurred in 1933 34 and with the short of the short o

than in the preceding two years. These two factors combined to impart some strength to the position at the time

The recession in the price level after September appears in a large degree to be caused by the absence of any "cover" against such stocks as may still be left in the possession of holders. This reacts unfavourably on the grower as his surplus produce is put on the market about this time and consequently makes a poor price As suggested earlier in this report the moving forward of the "futures" delivery month from September to, say, October or even November, might, by spreading the "earry" over a longer period, to some extent correct the tendency for prices to sag in the autumn months By this means the influence of storage costs in determining the price level at this somewhat critical period would be strengthened without in any way disturbing the normal course of trading

The approximate returns on stocks of linseed held in up country markets are indicated in Appendix XL which shows the position at seven markets Storing linseed between April and September appears to be a profitable operation in four of the markets, of which ryo, viz, Raipur and Nagpur are milling centres of some importance The extent of net gain in these 4 markets after allowing for carry ing costs including godown rent allowance for deterioration and interest at 5 per cent varies from 0 6 per cent to 10 2 per cent. At the other three markets of which Cawnpore is an important milling centre the net loss varies between 05 per cent and 69 per cent carrying of hissed for an extended period up to December shows m all cases a net loss ranging from 30 per cent to 141 per cent. The wide differences which appear between the returns obtainable in the various markets may be partly due to the unsatisfactory price data available the recording of which has been discussed in Chapter III and partly to the prices at these marl ets being temporarily influenced

On the whole the seasonal rise in the up country markets is comparatively more pronounced than at the ports (Chapter III—pages 82 to 85) To what extent this may be due to the stability ing influence of the futures markets at Bombay and Calcutta is difficult to say The diagrams facing pages 82 to 84 clearly show that there is ample scope for taking advantage of the seasonal rise which in one particular instance was more than 25 per cent, by the creation of some form of controlled sales based on more efficient and increased facilities for the proper storage of produce in the assembling markets The application of this principle might, with advantage be tried out in Bihar where conditions are less advanced than in many other provinces and where there is relatively speaking far less organised trading in any shape or form than elsewhere

F -Stocks and storage accommodation

(1) STOCKS AND CARRYOVERS

No records whatever of stocks are kept at any of the interior markets of India At the ports, however, the port authorities main ten records of stocks in the warehouses rented out by them to the

tiede These data are for private use and are not published Detailed records of mill stocks are also kept by some of the mills but the total quantity of linseed for which any reliable figures are available is so small that apart from griing some indication as to seasonal ariantions they are far from being sufficiently comprehensive to mable any estimation of the stock situation to be arrived at for the country as a whole. Such estimates as are made by the trade from time to time are largely founded on intelligent guess worl based on long experience of market conditions.

The estimated stocks of linseed at Calcutti Bombay in upcountry markets and in Hyderabid as published in the Inlian Trade Journal and referred to in the weekly linseed circular issued by the Imperial Council of Agricultural Research are based on information of this kind supplied by commercial firms and by the Hyderabid State authorities and are given in Appendix XLI. In the latter instance the estimated stocks at 5 centres are tallen and 10 per cent added to cover the remaining marlets. It may not be out of place to mention here that the stocks shown against Calcutta in the above publications are not the total stocks at that port but appear to be merely the free stocks available for sale locally. Previously acquired stock is held by shippers and mills are excluded from this estimate and the extent by which the stocks registered by the Port Commissioners and those given in the official publications differ will be seen from the following table —

Stocks of Linseed at Calcutta

		(T ns)			
		As given in official publications		As recorded by Port Com m ss oners	
	1935 36	1936 37	1935 36	1936 37	
April	1 266	3 000	9 619	5 265	
Мау	2 750	5 000	4 809	8 904	
June	2 250	3 566	7 455	4 6aI	
July	2 000	1 750	3 316	3 899	
August	650	2 950	1 345	4 574	
September	1 200	2 000	9 085	4 065	
October .	3 566	1 250	- 599	3 132	
hovember	1 500	550	5 265	8 290	
December		275	2 242	8 597	
January	2 000	500	4 777	1 949	
February	1 250	600	° 269	1 209	
March	300	225	I 350	545	

Until and unless steps are taken to co ordinate the various sources of information and put the collection of these valuable data on an organised basis so long will these estimates continue to be given that stiention by the trading community As matters stand at present a correct or even approximate estimation of carry overs

is impossible and experience has shown that there are usually about as many different opinions as to the probable size of the inseed crop left over at the end of the season as there are business concerns interested in this commodity. In this respect conditions are no different to those obtaining in other agricultural staples

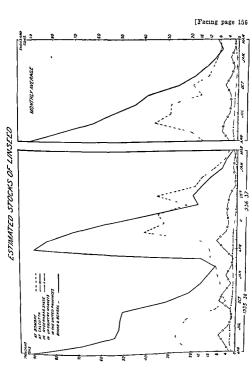
(2) Periodicity

The diagram facing this page illustrates the monthly stock struction in the main linseed areas of Northern India in Bombay Hyderabad and Calcutta and is based on Appendix XIII with the exception of the curve for Calcutta which represents the port authority s figures given on page 105 As an index of actual monthly stocks for the whole of India the diagram is patently incomplete but it serves to indicate the seasonal changes

It has already been mentioned that generally producers part with their linseed shortly after harvest keeping back only their extent of this outflow is clearly shown on the steep fall in up country stocks which tales place from April and continues almost without interruption until December After the new crop has been seeded from October onwards such small balances of linseed as may be left over are taken to the marke so that stocks in the villages are fre quently exhausted by the end of \overhear or early in December In many of the up country murl ets stocks are held up to September or even Oc ober by which time most of the remaining surplus beginto move out to tle ports and the mills It will also be observed from the Calcutta curve that the transference of a large proportion of the erop to the ports during the immediate post harvest months results in stool's at Calcutta swelling appreciably during May and June Thereafter during the next three months when large shipments are going forward port stocks diminish but receive fresh supplies after September when as has been pointed out a large part of the remain ing surplus up country is disposed of The Bombay curve follows the same general trend but the September November increase in stool's which is a feature at Calcutta is not reproduced at the west coast port This is probably due to the fact that the linseed crop of Peninsular India which is some weels earlier than that in the north

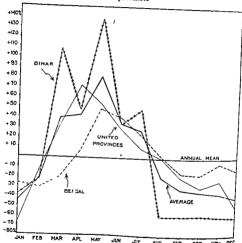
It is interesting to observe that stools in the Calcutta port ware houses usually vary from year to year in direct proportion to the volume of exports as will appear from the following table —

1931 39	Average da ly stocks (Tons)	Total exports from Calcutta (Tons)
1932 33	3 564	76 000
1933 34	9 898	47 000
1934 00	194	188 000
1935 36	3 97	97 000
1936 37	3 68	89 000
1800 31	3 317	119 000



Facing page 157]

Seasonal variations in Linseed stocks at certain mills in different provinces



The maximum and minimum daily stocks in Port Commissioners' Sheds, Calcutta, since 1931-32 are shown below. It will be seen that with the exception of the two years (1933-34 and 1933-36) when the peaks occurred in September and October respectively the tendency is for stocks to be highest in May and June. Stocks are generally smallest in March and there is a very large difference between the high and the low of each season.

Maximum and minimum stocks of Linseed at Calcutta in Port Com-

		missioners' sheds		
	Maxi mum Tons	Date	Mini mum Tons	Date
1931 3>	8 845	4th June 1931	453	25th February 1932
1932 33	5 926	18th May 1932	1 137	17th March 1933
1933 34	15 677	18th September 1933		31st March 195∗
1934 35	12,203	20th June 1934		26th March 193a
1935 36	* 10 290	23rd O tober 1935	944	9th March 1936
1936-37	10 "88	10th May 1936	318	19th Musch 1937

Supples of Inseed curred by different mills must obviously depend upon the buying police of the management and the stolage accommodation available. As a rule most of the larger concerns cover the bulk of their Inseed requirement: during the two or three months following the harvest when supplies are plentiful and prices generally at their lowest. As will be seen from the diagram facing this page, mill stocks tend to be highest from April to about June and lowest in December January and February prior to the arrival of new crop supplies. The slight rise which will be noticed between October and November is due to the replenishment of stocks consequent on the depletion of earlier supplies which are crushed during the monsoon months to meet the autumn and cold weather demand for oil

(3) Total storage accommodation

At the ports, warehouses and godowns are usually owned by the port authorities and located within the docks and are directly served by the railways Rents are also comparatively high in the congested areas which normally surround the docks so that generally there is little inducement for merchants and shippers to seek storing space away from the facilities offered by the port authorities Stocks tend therefore to concentrate within specific areas Up country where rents are much cheaper, there are seldom any localities exclusively sel apart for storage Any kind of accommodation so long as it is sheltered and can afford reasonable protection against the elements is pressed into service when the necessity arises It will be appreciated therefore that storage accommodation in India is elastic in the extreme The total amount of storage space at the disposal of the Bombay, Calcutta and Vizagapatam port authorities is sufficiently large to accommodate the entire Indian linseed crop if need arose At Calcutta the general sheds at Kantapuker alone would house 50 to 60 thousand tons of linseed exclusive of other warehouses in other parts of the Port Commissioners' estates

INTER CHAPTER SEVEN

Apait from what is required later for sowing the cultivators do not generally store linseed, but dispose of it as soon as possible after harvest. At the up country markets large quantities of linseed are stored generally in godowns of in the rooms of dwelling houses adjacent to the reallest. A good deal is also held in sheds at the large mills and the leading ports. In Hyderabad, it appears that over 70 per cent of the linseed is stored in bulk but in other parts bug storage is the rule. In the case of wheat and other food grains, there is some justification for handling the grain in bags as this is more convenient for the small internal retail trade. But in view of the large quantities of linseed going into the export hade and the almost complete absence of retail business there is not the same need for the use of bags.

Bulk transportation would, however, present certain difficulties. No th Bihar, for example, which is a large linseed producing area is served by the metre gauge and the produce has to be transferred on to the broad gauge railway for transport to Calcutta. Further, the grains of rinseed are so fine that they would be liable to leak through a built storage wagon. Nevertheless there seems some justification for bulk storage in the up country markets in so far as it is cheaper and the linseed is less liable to damage. The linseed could be put into bags later for transport.

Linseed is not subject to weevil attack but is very susceptible to damage by rats and water. The damaged grains not only give a lower oil content but also a poorer quality of oil owing to the presence of free fatty acids. Under good storage conditions there should be no deterioration whatever in the quality of linseed for at least 8 or 9 months—and indeed it can be stored for well.

over a year without any deterioration. It appears, however, that under the present conditions of storage the amount of dam, sed grains and the free fatty acid content increases as the produce approaches the port, and it is estimated that in respect of the quantities shipped and crushed in the larger mills the damage due to most time—which varies according to the seasons—amounts to over Rs 5 lakhs per annum which seems to indicate the need for paying more attention to the roofs and floors of existing godowns and sheds

The costs of storage upcountry are lower than at the ports. Bornoay is particularly high but the costs at Calcutta appear to be not out of line with costs of storing at, say, the ports in the United Kingdom. The seasonal fluctuation in price is apparently sufficient to cover the costs of storage up to September, but storing beyond this point does not seem to be a paying proposition. This is owing to the fact that after the September. Tutures contract closes, at Bombay and Calcutta there is no adequate cover until the May contract, the price of which is determined by the prospects of the next season's crop and particularly by the extent of the Argentine crop

Having regard to the relative cheapness of storage upcountry and to the very large seasonal movement in prices which occurs in certain parts, e.g., 25 per cent in Noith Bihar, there seems reason to believe that in such areas some form of organised marketing, say on a coope ative basis, might help the cultivators over the deepest part of the harvest time depression. There is, however, an obvious danger in trying to hold stocks upcountry too long. At the same time it should be recognised that there is an almost equal danger in piling up too large stocks at the ports, particularly at Bombay in the absence of an adequate milling industry there

The total amount of stoiage space at Bombay, Calcutta and Vizagapatam alone is sufficient to accommodate the whole linseed crop—and the accommodation available upcountry is elastic in the extreme. There are very few clearly defined storing centres. It is, therefore a difficult matter to arrive at the total linseed stocks in the country at any time.

Estimates of stocks at Calcutta, Bombay, in Hyderabad and in upcountry markets, based on such commercial and other returns as are available, are published weekly in the Indian Trade Journal but are clearly incomplete and of uncertain accuracy. The Calcutta stock figures, for example, do not tally with those in the Port Commissioner's godowns which include, however, bused sold and awaiting shipment. There is urgent need for the co-ordination of stock reports from the various centres and for more definite machinery for the regular recording of stocks in the principal markets. In this respect lineed does not differ from most other agricultural commodities.

CHAPTER VIII -- HANDLING AND TRANSPORTATION

A Handling

(1) ON THE FARM

In the main linseed producing tracts of the country, namely, the United Provinces, Bihar and the Central Provinces, linseed is often sold directly off the threshing floor, weighment or measuring being generally done by the buyer or sometimes by village weighmen or measurers Such produce as is not disposed of on the holding is carried by the cultivator to his home or to the market in head loads on pack animals or in carts according to the quantity invol of and the distance Before taking the linseed to the market the cultivator frequently gives his produce a certain amount of casual dressing over by means of hand sieves in order to eliminate the bigger lumps of earth etc, which happen to get mixed up with the linseed during threshing and which, owing to the inefficient methods of winnowing dependent entirely on the strength of the wind remain ir I nseed It was observed however that no special care was exercised to 11d the produce of its various impurities, nor indeed was this possible having regard to the primitive and often defective nature of the cultivator's equipment It may not be out of place to mention that the analysis of samples drawn from producers show a smaller percentage impurities than those drawn from other agencies in assemblin_ markets This indicates that when linseed is purchased village merchants and beoparis from growers it is often adulterated by the addition of a further proportion of dirt before being transported to the markets

The major part of the crop is handled in bulk until it leaches the markets, only a small portion being packed in bags, old second hand guiny bags of all types being pressed into service for the purpose For bulk handling, sheets of strongly woven fabric made from hemp, ocarse wool or cotton are used to form containers to fit on to the backs of pack animals or to make a lining for earts

The cost of handling at the farm is negligible as these operations are always performed by the cultivator and his family

(2) AT THE MARKET

At the markets the various operations such as unloading filling in bags, ste, are generally performed by labourers called hammals or palledars who specialise in these tasks, and by professional weighnen, measurers and cartimen. When the produce is brought to the markets bulk, as filled into the buyer's bags after cleaning and weighnent and it brought in bags, the contents are usually transferred into the buyer sontainers. A small hand scale weighing about 5 seers, at a time is containers. A small hand scale weighing about 5 seers, at a time is containers. A small hand scale pain is dressed in a rough and ready manner by the process of rular (hterally—"rolling") in which the heap is stirred by a circular motion of the hands, causing the interest of the state of the process of rular (hterally—"rolling") in which the heap is stirred by a circular motion of the hands, causing the form of the process of rular (heap) is the same of the process of rular (heap).

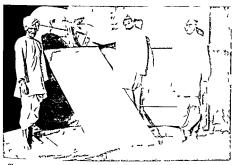
cases the produce when bagged and brought to the market is packed in irregular weights. After weighment however, it is filled into bags of approximately uniform weight

The charges for the various operations have already been discussed in detail in Chapter V. Suffice it to say here that the handling and weighment charges in different markets vary from about Re 030 per hundred rupees worth of produce to over Rs 280.

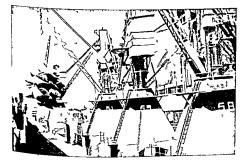
When the linseed from the majority of the upcountry markets is sent down to the ports it is rarely despatched in the condition in which it is bought from the producer A certain amount of additional handling and manipulation is done to prepare it for the port markets and the cost of these operations averages between 3 to 6 pies per Briefly the procedure is for several small heaps to be piled together in the commission agent's or wholesale merchant's godowio The heaps are then mixed sometimes with large rakes in order to obtain fairly uniform refraction throughout the lot and the produce is subsequently run over large sloping screens (See upper plate facing this page) The extent of the cleaning done depends largely as to wlether the linseed is being consigned to Calcutta or Enquiries have shown that the impurity content of the linseed can at this stage easily be reduced to about 3 per cent without involving any additional cost over and above what is at present being incurred Owing to the basis at Calcutta being 5 per cent refraction non mutual* no attempt whatever is made by mer chants and others consigning goods to that port to bring down the proportion of impurities below 5 per cent As no premium is pad for linseed containing less than 5 per cent refraction the proport on of impurities is usually kept well above that figure Indeed the average impurity content in the linseed which reaches Calcutta from the United Provinces and Bihar is generally somewhere in the neigh bourhood of 6 or 7 per cent and quite frequently exceeds the latter figure On the other hand it is significant that the amount of refraction in the linseed consigned to Bombay is lower To what precise extent this is due to the fact that the Bombay contract is & mutual one on a 4 per cent basis is difficult to state in condition between arrivals of linseed in Calcutta and those in Bombay is however so marked as to indicate that the Bombay terms are a definite inducement to market the produce in a comparatively

The handling customarily performed in the markets of the northern districts of the United Provinces and in Bihar still leaves in the linseed a removable surphilus of anything from 2 to 4 per cent of impurities. This dirt and rubbish is transported to the ports at a freight cost which on a conservative estimate may be placed in the neighbourhood of at least Rs 2 lakhs per annum It has seembly to be eliminated to some extent prior to shipment and involves further cleaming costs.

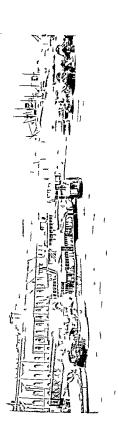
^{*}A large mill near Calcutta buys on a 3 per cent mutual contract and thereby obta ns far cleaner produce than is ordinarily railed to Calcutta for the wholesale and export trade.



Cleaning linseed in an upcountry merchant's godown by means of a sloping screen



Loading linseed at the Bombay docks



(3) AT RAILHEAD

Linseed brought to railhead as always packed in bags, generally fairly uniform weight Practically all the consignments destined for the port markets are packed in "B Twill" and "Heavy C" bags, a description of which is given later When the bags arrive at the railway station, they are unloaded from the vehicles employed for the purpose (usually bullock carts and sometimes lorries) and manhandled into the railway steds This is done by cartmen or other labour employed by consignees. The cost of unloading from carts or lorries into the railway sheds varies at different stations, ranging from Re 0-4 0 to Re 190 per hundred bags.

Railway sheds are generally covered at all the more important stations, but an insufficiency of covered accommodation at various places was complained of by the trade in the United Provinces and Bhar

After arrival, the goods are usually loaded into wagons within thours. The charges for loading and unloading are included in the railway freight, these services being performed by labour employed by the railway. The method of hiring labour for this purpose differs from one railway administration to another, for instance on some railways hammals are engaged on monthly wages varying from Rs 10 to Rs. 22 per month while on others, labour is provided by a contractor on rates varying, at different stations from Re 140 to Rs. 3 per 1,000 maunds handled. In certain instances unloading charges are not included in the freight and the unloading is done by the consignees, for example, for wagons booked to mill stdings.

The use of hooks is not permitted by the railway administrations but he rule is honoured more in its breach than in its observance particularly at stations where transhipment takes place from narrow to broad gauge lines. This results in the bags being torn and part of their contents lost. In a commodity such as linesed which has a smooth and polished surface and "runs" easily the loss occasioned by torn containers may at times be very considerable. The railway staff at a important transhipment station in Bihar estimated this loss to be about 1 per cent. Obviously this proportion increases with further handling down to the nort.

The clearing and booking of consignments are carried out through station datals (brokers) or hundihars who act for consignees and con signors on payments of small fees of about 4 annas per consignment

(4) AT RIVER GHATS

Traffic on waterways is confined mainly to the United Provinces, Bilar, Bengal and Assam and represents a negligible part of the total volume of the Assam and represents a negligible part of the goods is done by coolies at charges varying from about 2 pies to the goods is done by coolies at charges varying from about 2 pies to Pies per bag at different places Many of the undividual ghats, at which loading and discharge takes place, are under the management of contractors who obtain these rights by purchase at auctions held Living.

either by the Public Works Department or by Local Boards fibe cost of such a contract varies according to the importance of the glat. It may be as little as a few hundred rupees per year or a much as Rs 85 0.00 as for example Burghat at Gorakhpur Contractors are allowed to collect a toll on all despatches and arrivals at the glat concerned Except at steamer ghats and a few of the other larger ghats no cover is provided in the way of shed

(a) AT PORTS

The only three ports concerned in the linseed trade are as already mentioned Bombay Calcutta and Vizagapatam A small proportion only of the linseed arriving at the ports from the interior markets is exported in the same condition as received and another handling similar to but often more elaborate than the treatment given upcountry is resorted to Generally shippers have to open the bags and clean the contents by passing the linseed over sloping screens and through wire mesh serves which are suspended from wooden frames m such a way as to permit them to be oscillated to and fro by manual labour Several individual lots or consignments are bulked and thus treated in order to make up parcels of fairly uniform refrac tion for shipment. The goods are then repacked in gunny bags to a standard weight of 180 lb net each. The cost of cleaning varies from 6 pies to Re 010 per bag depending on the cost of labour and the cleanliness or otherwise of the linseed being handled The total expenditure incurred by shippers and others in these cleaning operations at Calcutta alone during 1936 37 could not have been less than Rs 50 000 and was probably nearer double that figure This takes no account of the additional space required all of which has to be hired and paid for

Loading into steamers is done by means of cranes a typical dock

side scene being illustrated in the plate facing page 16?

\text{Vormally Inseed is exported in bags but since 1933 34 sinpments from Bombav to the United States which are always in full cargoes have been in bulk. The produce is handled at the dockade in large but once on board the bags are cut open at the mouths and the contents empired down the hatches into the hold. Manual labour is employed for the parpose. This method of transportation is made possible by the fact that the mills in America which buy Indian based are equipped with suitable facilities to deal with bulk shipments the vessel discharging directly into elevators. Bulk shipments and dentally mean a saving in freight and other meidental expenses to the extent of Rs. 2 or Rs. 3 per ton.

(6) CONTAINERS AND POSSIBILITIES OF HANDLING IN BULK

As has been noted earlier linseed subsequent to its leaving the assembling markets is handled in bags until it is ultimately consumed in the country or exported abroad. It is only when the produce moves from the farm to the market that a portion of it is handled in bulk.

As with other oilseeds and food grains the bags used in the Imseed trade are manufactured from jute and are popularly known as gunnies or gunny bags or by such vernacular names as bord basia and bardana. These are principally manufactured by the

jute mills at Calcutta but there are also two mills at Cawnpore and mills in the Madras Presidency at Nellimaria and Chitavalsa The most common type of bag used for exports and for supplies con signed to the mills at the ports is the B Twill measures $44 \text{ in} \times 261 \text{ in}$, has three blue stripes running down the middle and weighs 24 lb. Another type sometimes used is called the Heavy C. This is a plain big without any stripes measures $40 \text{ in} \times 25 \text{ in}$ weighs $2\frac{1}{5}$ lb and costs a little less than the B Twill The convenient capacity for both types for linseed is 21 maunds (185 lb) The types of B Twill and Heavy C bags are commonly recloned as 1 seer 2 chhatanks and 1 seer respectively the former being equivalent to a little more than 23 lb and the latter to 2057 lb In the internal markets several types of bags are used the most usual type being the smaller D W (double wart) bag which holds 2 maunds only In the interior the prices of linseed are generally quoted without the bags while at the port marl ets and for the export trade prices are inclusive of the cost of new B Twill bags For the greater part of 1937 the price of B Twill gunnies at Calcutta has averaged about Rs 21 per 100 bags

B Transportation

The cost of transport is largely responsible for the difference in price between the upcountry and port markets The values ruling at the port terminals of Calcutta and Bombav are the basic or key prices of the linseed trade in India and the cost of transport is the most important individual factor accounting for the difference between the prices at these two centres and those obtaining in other

Transportation is effected (1) by road (2) by rail and (3) by water

(1) By road

(a) Pack animals -- Practically all the roads from the villages to the markets are unmetalled or kachcha and in some cases are mere tracks winding in and out between the fields During the monsoon these are rendered quite impassable Pacl animals and bullock carts are the only means of transport on these routes. The quantities carned by animals are generally small and vary according to the condition of the road the season and the strength of the animal Bullocks normally carry from 2 to 4 mannds each ponies from 1 to 3 maunds and camels from 4 to 7 maunds

(b) Bullock carts and camel carts—The ubiquitous bullock cart is still the most important means of transport by road The earts used in India are of crude construction having wooden wheels in some instances shod with iron tyres These carts are of several types Some are two wheeled while others have four wheels some are two wheeled while others have four wheels they drawn by one two or even three bullocks. The capacity of a cart may the factors as the number of factors as the number of the state vary from 8 to 40 maunds depending on such factors as the number and size of bullocks used and the condition of the road, etc. In the rural areas of Northern India and particularly in the Punjab the carts are large in size have two wheels and are drawn by two but locks. locks occasionally three In the south as for example in the Bombay

L137ICAR

Presidency the carts are relatively smaller being in keeping with the himted tractive power of the somewhat diminutive cattle of those parts. Carts equipped with pneumatic tyres have also begun to appear in recent years but their number is insignificant and mainly confined to the large towns and cities. This type of equipment improves the carrying capacity of the vehicle thus lowering the cost of transport but the heavy initial outlay and dearth of metalled roads in the rural areas have militated against its wider use.

It should be noted that transport by road is preferred for short hauls even where origin and destination are connected by rail as it involves less handling is more expeditious and works out cheaper for distances up to say 30 miles

(c) Wotor lorry - Another means of transport which is of m creasing importance is the motor lorry Lorries generally ply on metalled roads but are frequently found to operate on kachcha routes between October and May The number of first class metalled trunk roads in India is comparatively small the two main arterial systems being the Grand Trunk Road from Calcutta to Peshawar and fle Trunk Road connecting the north with Bombay and South India These roads are joined at intervals by subsidiary roads which con nect up a number of towns and cities but do no more than touch the fringe of the rural areas In the transportation of linseed—the main directional movement flows from the producing areas to the portsmotor lorries are used from certain assembling markets to the nearest railway stations particularly when the distances are considerable eg from Hanumana market in Rewah State to Mirzapur station a dis tance of 42 miles For the transport of linseed from the docks or rail termini to the mills motor lorries are also in general use at Calcutta and Bombay and at interior crushing centres such as Cawapore and Nagput Lorries compete seriously with the railway at many points Owing to the large number of relatively low schedule and special rates provided by the railway no instances were observed in the course of the survey of linseed being carried by motor lorry between two points connected by rail but linseed oil is frequently sent by lorry for example from Calcutta to Burdwan-a distance of 67 miles The means of transport is in such cases preferred not only because the cost is less than the equivalent charge by rail but also because handling and cartage to and from the stations are eliminated so that even if the rates quoted happened to be the same the economies resulting from reduced handling would favour the lorry Another factor in favour of the lorry is the saving in time and the freedom from formalites attendant on booking or clearing goods at the railway stations In some instances the lorries accept rates considerably lower than the railway freight but it is not known whether such rates are economi cally sound For example one Cawnpore mill arranged to consign Imseed oil to Delhi by lorry at Re 0 100 per maund whereas the railway freight at the time between these two points was Re 0 14 6

^{*}A through route is now under construction from Calcutta to Bombay Tin new highway will link up a number of the existing roads in the provinces through which it will base

Lorries (and bullock carts) are mostly owned by individuals and not by corporate bodies although certain owners have more than one vehicle In the large towns and ports however a number of transport contractors own and operate fleets of lorries as well as carts In this connection it may be interesting to describe conditions in Calcutta which as far as can be ascertained are not typical of conditions Bombay or other cities and large towns The right to carry all goods from certain points of arrival such as rulway stations riversi le ghats, etc has gradually come to be acquired by contractors known locally as chardharn * This right has no legal san tion but is apparently based on long usage and seems to be generally respected by the other competing carriers Each chaudhari therefore has his own particular centres and excludes other contractors from operating from the same localities This arrangement is not officially recognised by the iail way and other transport companies which incidentally do not exer use any control over outside carriers so that virtually speaking each contractor holds a quasi monopolistic position in regail to the term in served by him As a result the rates of cartage tend to be higher from points where the chaudhari system is in vogue as for example at the Howrah Goods Depot whence the lates are comparatively dearer than from Kantapul er at the Kidderpore Docks which is a free point worked by a number of competing contractors

(d) Cost of conteyance—The cost of conveyance by road varies according to the condition of the road the time of the year the distance and the chances of a return load. The charges for carrige are less on metalled roads than on Kachcha roads and are generall; lowest in the winter when dry weather prevails and highest in the monsoon when the rain impedes movement. Short hauls are dearer than long distance transport.

In the United Prounces Bihar and Bengal the charges by bullock eart range from about 2 pies to 3 pies per maund per mile On the metalled roads of these areas it costs from Rs 2 to Rs ° 8 0 to tary 20 manufas for 10 miles 'This is equivalent to 19 or 4 pies per mand Motor 10 miles 'This is equivalent to 19 or 4 pies per mand Motor lorries charge comparatively less than bullock carts for longer hauls 'For example at Mirapuir the lorry rate for carry missed from a distance of 42 miles to railhead was found to be Re 0 80 per bag of 24 minuts is e about 1 pie per maind per mile

In the Central Provinces the average cost of transport on metalled roads is estimated to be about 12 pies per manual per mile while the rate for kackeha roads stands at 266 pies per manual per mile. In the Bombay Presidency carriage by road may be reckoned as 2 pies per manual per mile in the ullages and double that figure in the eties. In Hyderabad it is approximately 1.6 pies per mile manual per mile while at the ports of Calcutta and Bombay the average rate is as high as 5 pies per mile.

It is almost impossible to calculate an accurate average rate for the whole of the country owing to the variable conditions in the pro vinces and States but it may be stated in a very general way that

^{*}The term is an honor fic t tle meaning important one

the transport of linseed by road costs on an average roughly 2 pies per maund per mile

On occasions when unfordable rivers have to be crossed during the monsoon the earts have to be ferried over from one bank of the river to the other. These charges amount variously to Re 080 to Re 1 per eart according to season and the width of the river. Frequently tolls have also to be paid by all types of vehicular traffic for crossing over bridges particularly in North Bihar.

(2) By rail

The great bulk of Inseed is moved by rail. Taking an average for the triennum ending March 1937 the inter provincial traffic by rail amounted it over 247 000 tons curried mainly from the United Provinces Bishar the Central Provinces and Hyderabad to the potts of Calcutta and Bombby. This takes no account of the movement within the provinces and States which having legard to some 16 000 tons of Inseed railed from stations in the Bengal and Bombby Ters denices to Calcutta and Bombby and the quantities used at the more important upcountry milling centres may be reckoned to amount to about 38 000 tons. Thus a total of some 285 000 tons were not an average put annually on rail. This represents about 60 per cent of the average annual eroo of those vers.

Exports and imports of linseed by rail (and river) relating to the different areas are given in detail in Appendix XII

Comparison with 1919 20 shows that the average provincial and State imports and exports during the years 1934-35 to 1936 37 have not very greatly changed as regards their general relationship although the total quantities moved in the latter period are about 20 per cent. in excess of 1919 20 As regards imports the most significant change is seen in Bombay incomings in that presidency having almost doubled from nearly 62 000 tons to well over 112 000 tons. Imports into Bombay during 1919 20 are perhaps not a fair index of the volume of traffic as there was a serious crop failure in 1918 19 which largely affected the trade of Bombay On the other hand Pengals imports from other provinces mainly for export have declined by about 9 per cent from about 133 000 tons to 122 000 tons Central Provinces now import less than formerly while Madras on In both cases the the other hand imports a good deal more quantities involved are small. In the former area imports have dropped from about 5 600 to 1 100 tons and in the latter imports have increased from less than 100 tons to 7600 tons accounted for by the fact that linseed is now being consigned to Vizagapatam for shipment abroad this port having been opened to 1933 34 Imports into Sind mostly to Karachi have duminished from about 7 600 tons to less than 100 tons Supplies used formerly to be consigned from the United Provinces to Karachi but owns partly to adjustment of railway freights the export trade which formerly went through Karachi has been largely diverted to Bombay which lies somewhat nearer to the producing centres

As regards exports Bihar now despatches about 18 per cent less than formerly the quantities involved having fallen from about 91 000 tons to a little more than 75,000 tons

This is due to increased consumption by oil mills within the province

Exports from Central India and the Central Provinces have risen from about 19 000 tons to 24 000 tons in the first named area and from some 13 000 tons to over 22 000 tons in the latter

The increased local production of lin seed which is indicated largely accounts for the greatly reduced imports into the Central Provinces

Hyderabad now sends out of the State much larger quantities than formerly exports amounting to nearly 42 000 tons as against 18 000 tons in 1919 20 reflecting an expansion of production

Rapputana also exports on an increased seale the traffic having risen from about 6 000 tons to over 13 000 tons. The United Provinces exported about 20 per cent more in 1934 35 to 1938 37 than in 1919 20 the figures being approximately 69 000 tons and 56 000 tons respectively.

- (a) Railway freight —The rates of freight charged by railways fall into 3 divisions viz
 - (1) class rates
 - (11) schedule rates and
 - (m) station to station rates
- of llass rates—The different commodities are grouped into classes for the purpose of arriving at a rate where schedule or station to station rates do not apply. Minimum and maximum rates are fixed for each class. All rates of whatever kind must be kept within these limits. The maximum of the class in which a commodity is placed in the ordinary rate per maund per mile.

The sixteen classes in which commodities are now divided (as from May 1936) with the maximum and minimum rates as fixed by the Railway Board are as under —

Class	Maxima per maund per mile (pies)	Min ma pe maund pe mile (pies)
1 2 2A 2B 2C 3	38 42 46 50 54	•100
3 4 4 4B 5 6 6A 7 8 9	58 62 67 72 77 83 89 99 99 1 04 1 25	166
	1 87 J	

class 1 and unless schedule or station to station rates are applied on any particular railway system or between any two stations the ordinary rate for linveed is at 38 pie per maund per mile Various

additions are made to class rates for terminals short distance charges and tolls

(n) Schedule rates —A schedule rate is a rate quoted on a bass lower than the maximum of the class —It may be on a uniform basis, such as 250 pie per maund per mile or it may vary according to distance or weight on the telescopic (cumulative) principle. A schedule rate may be quoted per maund, per ton or per wagon —Schedule rate applicable to inseed vary considerably over different railway administrations, e.g., the schedule rate for linseed over the Bengal and North Western Railway is 250 pie per maund per mile for distances of 100 miles and over, while on East Indian Railway is 233 pie per maund per mile for distances less than 101 miles and on the following teles opposedate for distances loss than 101 miles and on the following teles.

For the first 75 miles 380 pie per maund per mile From 76 to 300 miles, add at 200 pie per maund per mile Above 300 miles add at 100 pie per maund per mile

(iii) Station to station rates — A station to station rate is a special rate for the total distance between two specific points.

These are fixed on the principle 'what the traffic will bear', and represent special reduced rates between two points fixed on a consideration of the volume of traffic and in order to meet competition from other transport agencies be they railways, forries country craft or steamers. Station to station rates have been granted from a number of stations in the United Provinces Bihar and the Central Previnces which despatch considerable quantities of linseed to Calcutta, Bombay and Vizagapatam.

The following table gives a few specimen station to station rates and for comparison the rates calculated on class and schedule basis (with additions for terminals etc., where applicable) —

Specimen rates of freight on Linseed (per maund)

From	То	Railway	Distance (miles)	Station to station rate	Calculated at schedule rates	Calculated at class rates.
Bastı (UP)	Howrah	BNW		Rs a p	Rs a p	Rs a P
. ,	(Cal cutta)	EI	248 281 ——-529	0 8 10	0 12 10	1 2 7
Dighwara (Bihar)) Howrah (Cal cutta)	BNW EI	78 283 —-361	0 6 5	0 7 6	0 11 5
Raspur (CP)	Bombay	B N GJ P	190 518 708	0 14 1	1 3 3	1 7 9
Nagpur (C.P)	 Bombay 	GIP	520	0 8 5	0 13 3	1 J 10

(b) Terms of booking —When linseed is packed in new sound bags it is accepted by railways for carriage at railway risk, but when in the opinion of the station authorities the bags are old or defective, the railways accept such consignments only at Owner's risk

Enquiries in different provinces have shown that the major portion of the consignments tendered for carriage to the ports, are packed in new or sound once used gunnies and are accordingly accepted at railway risk. Over the Bengal Nagpur and Eastern Bengal Railways lower freight rates are allowed for booking owner's risk and consignments in old bags can also be booked Owner's risk

Before the goods are loaded into the wagons 10 per cent of the consignment are generally required to be weighed and marked practice however a smaller number which amounts in most instances to 5 or 6 bags only, irrespective of the size of consignment is weighed if the weights are found to be uniform

Linseed is invariably carried in covered wagons. On the metre gange systems the capacity of a wagon may range from 9 to 11 tons On the broad gauge lines the wagons carry from 14 to 24 tons rule the supply of empties available is ample but some complaints were made by the trade in the United Provinces and Bihar as to the delay in obtaining the wagons, particularly at the smaller stations during the months of May and June when the pressure of the crop is at its height

For outward traffic, wharfage is levied on all goods brought to the railway sheds but not booked up to midnight of the day next following that on which goods are brought to station and for inward traffic on goods not removed from railway premises within the free time allowed, which is usually 48 hours after midnight of the day on which consignments are made available for delivery is charged on vehicles ordered and waiting to be loaded by consignors or unloaded by consignees after expiry of free time allowed which is usually nine hours of daylight from the time at which the vehicles are placed in position for loading or unloading The charges for demurrage are levied generally on the basis of the earrying capacity in tons of the wagons used and the wharfage charges are calculated on the basis of the actual weight of the con signment. The rates for demurrage vary on different railways for instance, demurrage charges on the B B & C I G I P, and N W Railways are one anna per ton or part of a ton of the carrying espacity of the wagon per hour or part of a non whereas on the E I Railway the charge is 8 pies per ton or part of a ton Wharfage on the city of a normal railway. on the other hand, is levied generally at the rate of approximately 3 pies per maund per day

The object of these charges is to dis courage consignors and consignees from using railway wagons or sheds as a public warehouse for their convenience

Over and above the authorised charges the trade has to meet certain miscellaneous expenses to obtain facilities in booking clearing of consignments These charges are included in the invoices exchanged between merchants

(3) By RIVER

Transport by water is generally cheaper than transport by ether 10ad or rail and is availed of wherever possible. Its main diad vantage is that it is much slower, particularly where country saling craft are engaged Transport by this means is confined to the United Provinces Assam, Bihar and Bengal

Rates of freight are highly variable and are subject to negotia tion, and in this respect have much in common with road traffic the cost of which is also open to bargaining

The quantities of linseed carried by the river steamers are recorded, for some stations by the Department of Commercial Intelligence and Statistics and included in the rail and river borne statistics published monthly, but no records exist of traffic by country boats A very rough estimation, however, based on personal observation at a number of riverside points would appear to indicate that the total volume of linseed carried by country craft in Bihar and United Provinces is somewhere between 2 000 and 3 000 tons

United Provinces -A considerable amount of internal traffic of which linseed forms but a small proportion amounting to nearly 1000 tons is carried on the rivers flowing between the districts in the east of the United Provinces and Bihar A number of these rivers the Ganges Jumna Gogra etc are navigable throughout the year over certain distances but during the rainy season long stretches which are ordinarily almost dry or too shallow for navigation become full of water deep enough to permit the passage of heavily laden country sailing craft During this period it has been observed that the fregats charged by country boats are lower than at any other season of the year

Apart from paying the boatman for the carriage of the produce a charge has to be paid to the ghat contractor for loading and unloading the boats The latter item varies from 3 pies to 6 pies per big and the charges for earrying the goods down to the boat or from the boat to the bank range from 01 to 02 pie per maund per mile according to

Freight by country boat is considerably cheaper than by rail For example the rate for carrying inseed by boat from Gorakhpur lo Sahebganj a distance of over 200 miles—was ascertained to be Rs 12-40 per 100 manuals or equivalent to about Re 020 per manual as compared with Re 063 per maund by rail

Bihar - Boat traffic is mainly confined to the Ganges, but a small quantity of linseed also moves along the Sone canals and the rivers in South Bihar which are navigable only in the rainy season and immedi ate post monsoon months to between July and October Linsed is carried from up river chiefly to Patna Bhagalpur and Sahebganj The rate from Buxar to Patna—a distance of 73 miles—is Re 0 3 6 per bag or approximately 0 13 pie per maund per mile The toll charges on canals and rivers where levied are comparatively small and vary from 4 pie to 2 pies per maund

Bengal -- A proportion of the linseed exported from the markets in the main producing districts to Naihati and Calcutta (Jugganath Ghat) is carried by country craft The quantities so transported

form only a small fraction of the total amount of linseed consigned to Calcutta from various sources for, apart from the time factor and other risks, the produce sent by rail can be more conveniently booked direct to mil sidings, to Kantapuker or alongside the steamer at Kniderpore Docks

Boat hire from Chuadanga to Calcutta—a distance of 84 miles—amounts to Re 016 per maund or 21 pie per maund per mile

At Calcutta boats and barges plying on the river Hooghly occa sonally carry linseed products to the vessels lying in the docks or outside in the stream, but as a rule the loading and discharge of linseed are effected alongside the wharves

Assum—Two typical boat hire charges are those from Silchar (Karimgan), a distance of 35 miles and from Gachbari to Silhet, 30 miles. The rate for the former is Re 0.16 per maund and for the pre maund and pre per maund and pre miles. The charges thus approximate 4 to 5

Most of the country craft (see the plate facing page 176) used on the Ganges Brahmaputra and other waterways in the United Provinces, Bhiar and Assam are small and have capacities ranging from 50 to 500 maunds. They are mainly used over comparatively short distances only and are owned either by the boatmen themselves or, in a few instances by merchants.

The insurance of goods so consigned is apparently considered an unnecessary luxury by the local trade

A small part of the river traffic in linseed in the above mentioned provinces is also carried in "flats" towed by the steamers one of which may be seen in the foreground of the plate opposite page 163 lying alongside a pontioon jetty near the Howrah Bridge at Calcutta River steamer freights although lower than those charged by the railways, are somewhat dearer than country boat rates. For example, the special freight rates from Dighwara to Calcutta, a distance of about 361 miles are Re 0.40 and Re 0.65 per maind by steamer and railway respectively. During 1936[37, the amount of linseed received in Calcutta by river steamers was about 4000 tons and represented 3 per cent of the total arrivals

(4) By sea

different ports of India s misginificant Consignments of a few bags at a time are periodically shipped from Calcutta to Rangon and from Bombay to Malabar coast ports but the quantities involved are in small retail lots and of no importance

(b) Foreign trade—The foreign trade in linseed has already been referred to in Chapter I The produce may either be shipped in what is known as parcels, ie, lots of a few hundred tons at a time or in full cargoes in which case the entire capacity of the chartered Parcel freights on the regular steamship services which operate between India and the United Kingdom Continental Europe and America are booked at the port of shipment usually through freight brokers. On the other hand when full cargoes are involved.

the vessels are normally chartered in London, on the Baltic Exchange, freight being payable, usually in sterling, at destination after discharge.

The rate of sea freight plays a significant part in the linseed export trade as it forms the largest single item in the price spread between the producing and consuming countries Freights ofice vary from month to month according to the supply and demand and there are also differences between the rates for ready or near ship ments and those for more distant positions. These conditions obtain at Bombay which is a free market for freights to foreign ports, and at some of the other major Indian ports. At Calcutta however the rates of freight are determined periodically by a Conference of all the shipping lines Such Conference rates of freight as are fixed from time to time by the representatives of the steamer companies, with the previous sanction of their principals in the United Kingdom or else where, apply to all the companies A rebate of 10 per cent. is granted to exporters provided all their shipments have been made by Con ference vessels and not by any outside tonnage. For this reason sea freights from Calcutta are more stable than if this port were a free market but are on the other hand, considerably dearer than Bombay

The differences are particularly marked in the years prior to 1936 37 and it is probable that Calcutta Inseed would have found an even larger market had the rates of freight from that port been on a more competitive basis

It should be noted that the basic rates of freight from Calculate to United Kingdom are fixed on a range of major ports embracing London, Laverpool, Glasgow Dundee and Manchester The rates quoted for these ports apply to any quantity whatever For the minor ports such as Levith, Hull, Southampton, Aronmouth, etc rates are higher by 5s per ton for parcels varying between a minimum of 300 tons to 500 tons 23 h 3d per ton for 500 tons to 1000 tons and 1sh 3d for 1000 tons and above

The following table shows the comparative rates of freight for linseed from Bombay and Calcutta to London

Sea freights on Linseed to London

	(Shillings per ton Bombay to London,			Calcutta	to London % rebate)	(subject
	Maximum	Mınımum	Average	Maximum	Minimam	Average
1932 33	21	13	17/6	33/9	27/6	28/2
1933 34	21	15	17/6	27/6	27/6	27/6
1934-35	18	15	16	28/9	28/9	28/9
1935 36	20	13	17/4	28/9	28/9	28/9
1936 37	37	15	21/9	32/6	28/9	29%
1937 38 (9 months)	42	27	34/4	47/6	32/6	38/8

INTER CHAPTER EIGHT

Linseed is generally handled in bulk by the cultivator, but on being taken to the market it is brigged usually in B Twill or Heavy C Gunnies. It should be noted that the prices quoted upcountly are evaluate of bags but at the ports the price includes bags.

One outstanding feature seems to be the constant cleaning and the re-cleaning of the linseed at every stage. It seems obvious that when it is first cleaned upcountry the amount of impurities could be reduced well below 3 per cent without any extra cost, but is aheady men tioned the buyers' contracts at the ports are based on a higher figure and there is, therefore, no incentive to clean the seed properly so that dirt is shipped forward and extra freight paid on it. The extra freight is estimated to amount to 2 lakhs rupees and along with the cleaning costs the total loss amounts to over 3 lakhs on the linseed shipped to Calcutta alone.

Another point which is worth noting is that after leaving the cultivator the linseed is not handled in bulk, but in recent years exports from Bombay to the United States have been bulked at the time of shipment and this method shows a saving of Rs 2 to Rs 3 per ton in sea freight

Freight forms a very big item in the total costs of distribution. During the course of the survey no instance was observed of linseed being carried by motor lorry between any two points joined by rail. This is probably due to the fact that in the case of linseed the railways quote a very large number of station to station rates and also schedule rates which are lower than the class rates. Road transport apparently costs about one pie per mainud per mile and probably on an average about two pies and ranges higher in the cities where the

cost is about 5 pies per maund per mile. The railway class rate is 38 pie per maund per mile but some rail ways have scheduled rates averaging about 25 pie per maund per mile and based on a telescopie scale which goes as low as 1 pie per maund.

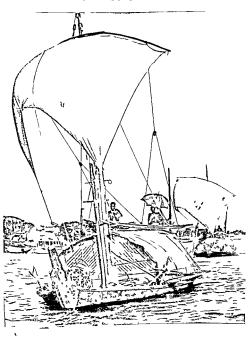
River transport, particularly in Bihai, United Piovinces and Bengal, where large quantities of Inseed are produced, seems to be the main competitor of the rail ways and the freight by river larges from about 1 to 2 pie per maund per mile

The railways, however, handle by far the larger part of the business and it is estimated that at least 60 per cent of the total crop is put on rail. In some parts, however, the available services provided by the railway leave something to be desired. Considering how sensitive linseed is to damage by rain there is an obvious need for the supply of covered accommodation at the railway stations at a number of centres. The use of hooks is also still prevalent. This is particularly objectionable in the case of linseed, and at one of the leading stations the loss in transit on this account alone has been estimated at 1 per cent. These are small but important items.

At the ports, particularly in Calcutta, the chaudhars system seems to lead to an undue increase in the handling charges. Calcutta seems also to be handicapped as compared, for example, with Bombay by the higher rate of sea freight to Europe—the difference in some years in the average freight being more than ten shillings per ton

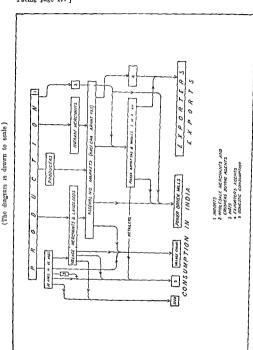
[Facing page 176

Country boats plying on the Ganges



ssembling and distribution of linseed

Cham



CHAPTER IX -WHOLESALE DISTRIBUTION

A-Agencies and methods

The distributive agencies for linseed are much the same as for which and have been discussed in detail in the Report on the Marketing of Wheat in India. The only difference is that wheat being a food crop entails an extensive retail distributive system whereas the retail trade in linseed is of negligible proportions.

The wholesale distribution of linseed may be undertaken by one or other of the following agencies—(1) Cultivators (2) Village merchants (3) Commission agents—an latipas (kachela and pakka) and wholesale merchants (4) Co operative organisations (a) Exporters and (6) Oil mills The diagrim opposite this page shows the various channels through which the linseed crop moves from the producer to the consumer in India and for export as well as the approximate extent of participation of the different agencies concerned.

(1) CULTIVATORS

As a rule cultivators do not take a prominent part in the whole sale distribution of this crop. Their activities are confined to the localities in which they live and mainly concern the distribution of hissed to owners or operators of village glans. Such sales take place usually at the hads or in the villages. In village sales the common methods of exchange are for the tell (oil miller) to ge to the cultivator the oil obtained after crushing the linseed brought to him by the latter retaining the cake as his charge or fee for crushing or alternatively to hand over oil equivalent to 18 to 22 per cent of the weight of linseed received by him. It is estimated foat proportionally 20 per cent of the total quantities of hisseed trushed by village ghamis 10 between 16 000 and 17 000 tons is supplied by the growers either direct or through sales in the village by the growers either direct or through sales in the village by the moderate consumption in the villages the quantities of hissed distributed annually by producers appear to be about 20 000 tons or between 4 and 5 per cent of the average crop. This of tonseed is seed.

(2) VILLAGE MERCHANTS

Supplies of linseed acquired by village merchants directly from Froducers or in the open market are largely sold for crushing in the country ghains. Sales are also made for domestic consumption and a shall extent for seed for sowing. Enquiries have shown that about 30 per cent of the total requirements of the village ghain equivalent roughly to some 33 000 tons are obtained through these financials.

The total quantities distributed by village merchants apart from the quantities taken by them to the assembling markets would

appear to fall not far short of $48\,000$ tons or 10 per cent of the aver a.e production.

(3) COMMISSION AGENTS (arhaliyas—Lachcha AND palla) IND WHOLESALE MERCHANTS.

The arhatys (commission agent) constitutes the main her in the marketing claim of linseed. The lackcha arhatys, acting on behalf of the seller who may be a cultivator, village mershant or any other type of person, arranges the change of ownership at the assembling market and thereafter does not figure in the subsequent distribution of linseed except on the comparatively infrequencessions when he assumes the role of a wholesale merchant or stockist. When this happens, the kachcha arhatys does not oromarally bur the produce brought to him by his client for commission sale but procures his supplies from other arhatysa of his land.

The palla arhatiya who may be regarded as the wholesde merchant or stocks t proper effects purchases of produce from centrough the lachcha arhatiya in the assembling market. To goods are then tored and sold direct to consumers such as mills or exporters or consigned to distant markets and sold there through the palka arhatiyas. In addition to trading on his own escent the palka arhatiyas also functions as a commission agent for the sile of privace belonging to others. A larve number of palla arhatiya are firms of some standing and subtance and often commission agent the palka arhatiyas are firms of some standing and subtance and often commission are firms of some standing and subtance and often commissions. Business relations are minimated with other arhatiyas in a number of markets while in main instances, large concerns have their own branches all over the country.

The arhatyas established at the ports and other large consuming markets keep their upcountry clients regularly informed of local market conditions so that if the indications warrant, the later may forward contemnents to them for commission sale. Such contemnents may be despatched either against previous sale of on account in which case the necessary instructions as to eventual disposal are furnished later. When a firm of politic arhatyas has branches in other markets purchases of produce are effected through these branches.

Conversely palka arhatiyas in the assembling markets kep the port arhatiyas informed as to the quantities of inseed available and the price hunts at which they would like to sell and out basis of these advices the latter make ready or forward sales to exporters and mills

Small samples are usually exchanged between these traders rethe beginning of the season in order that the qualities available may be appraised.

(4) Co-operative organisations.

The amount of lin_eed distributed by co-operative organisations regligible. The commission shops in the Punjab do not handle

linsed while sales by the few Co-operative Sale Societies function ing in Bombay, as already mentioned, do not exceed 25 tons annually No instances were observed in any of the other provinces in which the cooperative movement participated in the distribution of the erop

(5) Exporters

A large proportion of the export trade in linseed is at present m the hands of two international firms of produce merchants whose operations are controlled from Europe, usually from London There are however a number of Indian firms at Calcutta and Bombay whose share of the export trade in linseed although still small has increased in recent years. Formerly these international concerns maintained a widespread buying organization upcountry consisting of a number of agencies situated at important commercial centres which in their turn administered a large number of sub agencies staffed with the exporters' own personnel. These agencies were employed in the purchase of agricultural commodities linseed, frequently, from the producer direct and in the sale of imported articles such as piecegoods. An alternative method of making purchases through "guarantee" brokers working on the lines of arhatiyas was not fully exploited until after about 1931 when the depression coupled with diminishing exports of many agricultural commodities, compelled the closing down of a large number of upcountry branches These "guarantee brokers are commission agents of repute who have their own organisations at various centres. In consideration of a pre arranged rate of commission, these concerns guarantee the due fulfilment of all contracts entered into by them on behalf of their principals with whom they are required to maintain a security deposit in the form of a substantial sum in each on which interest is paid usually at 1 per cent above the Bank rate

With the improvement in economic conditions during the past Fear or two, a tendency towards expansion has been noticed and exporters have reopened some of their branches in a number of markets in producing areas and have appointed arhatiyas in others to make purchases on their behalf Some of these agencies are open throughout the year while others are seasonal operating only during the six months or so following the harvest

The methods of effecting purchases of agricultural produce by exporters are on "port pass", "agency pass" and "ready" terms. Purchases on "port pass" and "agency pass"! terms which are fairly common in the wheat trade are not in yogue as far as the linseed trade is concerned and most of the linseed purchased is either on "ready terms "t or for delivery within a month

L137ICAR

[&]quot;" Port pass "-Payment to be made according to weighment and analysis as found by exporters at the ports

1. Agency pass '—Payment to be made according to weighment and analysis

2. Agency pass '—Payment to be made according to weighment and analysis

Agency pass ' -- Payment to be more as found at the exporter's agency upcountry "Cooks which are immediately available, or the railway receipts to Ready "-- Goods which are immediately available, or the railway receipts for which are held by sellers

Such purchases at the ports are devoid of risk as they are regulated by contracts the liquidation of which takes place only after the goods have been analysed (A copy of a typical exporter's contract is given in Appendix XXXVII) Uncountry purchases on "ready 'terms which are often made on visual ex amination only imply a great deal of skill on the part of the buying agent or brokers as any under estimation of refraction on their part. as shown between upcountry valuations and port analysis would result in a dead loss as the goods would have been paid for on the basis of the under estimated impurity content. Shortage between the weights paid for upcountry and those subsequently delivered at the port would also cause loss. This method of purchase therefore necessitates strict and constant supervision by the firm's officers who are located at convenient centres and part of whose duties are to check the actual costs of such purchases by analysis and comparison with the prices advised to headquarters

The price limits to buy are telegraphed to their agencies by the exporters head offices at Calcutta and Bombay These limits are usually of short duration and are often valid for a few bours only particularly when the market is fluctuating rapidly Rarely are buying limits left in force for more than one day. They usually lapse on the evening of the day on which they are received and in certain cases are renewed automatically on the following morning should fresh instructions not have been received overnight or early in the morning if the limits are practicable purchases are made the quantities bought and the rates being at once advised to head quarters by telegram

(6) On Mills

The oil mills generally buy their requirements of inseed through arbatiyas and wholesale merchants either in the local market for preference or at more distant places (A copy of a typical contract used by an oil mill for such purchases is reproduced in Appendix XXXIII) Atternatively they may send out representatives to assembling centres in the producing areas as occasion arises for make purchases on their behalf and in a few instances only they may maintain a permanent or semi permanent staff of their own in selected centres. Normally the oil mills do not participate in the trading of linseed though on occasions when it suits them to do so surplus stocks are sold off

B -Finance of wholesale distribution

This has been described at some length in the Report on the Marketing of Wheat and is essentially the same in respect of both the commodities. The distribution of linseed from the assembling market right up to consumption in India or export abroad is financed at various stages be the ardativas and wholesale merchanis by mills and by shippers. The actual funds are obtained from the modern joint stock banks which maintain branches in all the more important trade centres in the country and from the shroffs who play such a large part in the indigenous banking system in India.

(1) Arhatiyas and Wholesale Merchants

These are frequently concerns possessing substantial capital and in addition to trading in commodities, a number of arhatiyas also function as baulers or discount houses drawing and discounting hinds (drafts and bills of exchange). When necessary short or long term loans are obtained from the banks or from shroffs. It is customary for advances to be made by these firms to the extent of 70 or 80 per cent of the value of the goods sent to them for commission sale. The rate of interest charged on such advances varies with the market the season and the financial status of clients but is generally between 6 and 9 per cent per annum Pakka arhatiyas generally between 6 and 9 per cent per annum Pakka arhatiyas (Saniyas or beoparis) the amounts and terms of such advances depending entirely on the credit and business relations existing between the parties concerned

(2) EXPORTERS AND MILLS

Exporters and large mills at the ports buy linseed from the local arkatiyas and wholesale merchants. It is usual to pay 90 per cent of the value of the produce against clean * railway recepts or on arrival of the goods. To finance the purchase of linseed bought at or through their own buying agencies in the interior shippers may remit funds by telegraphic transfer through one or other of the exchange banks or as more frequently happens the upcountry branch sells drafts on its head office or other branches seconding to the suitability of rates.

Exporters who have their offices in London or at other centres outside India generally provide themselves with funds in India by selling sterling bills of exchange usually drawn at three months sight or telegraphic transfers to such banks at the ports as handle foreign exchange. Another source of funds is from the import trade. Money received in India against sales of imported commodities such as precegoods is usually re invested in the country in the purchase of such export commodities as cotton oilseeds grains, etc.

(3) BANKS

There are several classes of banks in India—the commercial banks which are joint stock companies the cooperative banks meliding the land mortgage banks and the Reserve Bank of India. The last named is the bankers banl and is entrusted with the eash reserves or fittud resources of all the important banks. It cannot lead to agriculturist direct. The retual financing of the movement and storage of the crops is undertaken mainly by the commercial banks. The agriculturist himself is seldom able to have direct argolutations with the large joint stock banks for the reason that the quantities of produce which may individual grower can dispose of or store are much too small—apart allogether from the question of

[&]quot;The term "clean is appled only to railway receipts which are un administration with such remarks as "bags torn" or bags wet contents lable to damage etc

storage tachties which may be adequate enough for the purpose of domestic conservation but quite unsatisfactory from the bank spoint of new Certain exceptions to this general condition occur notably in the Punjab where there are several large estate holders with considerable quantities of produce mainly wheat and cotton and who also own secure and well built godowns

In addition therefore to performing all the ordinary banking functions of discounting and buying hands or hills and remitting or receiving, money a portion of the average commercial bank s'unds are liable to be used seasonally for the purpose of making advances to traders on the security of pledged stoels of grain seeds and other agricultural products. The land mortgage banks as the name implies do not partnepate in commercial finance or handling of trade door ments or railway receipts nor as fair as can be ascertained do the other co operative banking institutions except in special circum stances.

It is interesting to observe that the Statutory Report of the Reserve Banl of India recently issued* has drawn attention to the fact that the extension of the arrangements for the financing of the movement of mail etung of crops for which the Bank is in the best possible position can only be undertal en concomitantly with improvements in the grading and standardisation of staples and of contracts with the development of proper storage facilities and the establishment of properly regulated local as well as futures markets.

(4) Shroffs

These are the indigenous bankers of the country and to a very arge extent finance the internal trade in primary products and internal industries generally. Shroffs are usually of the Vank caste most of them belonging to the Varnari and Sindhi communities although in Western India a number hail from Outch and Gujarat. Their kothis or gaddist are a feature in all the chief tarkets throughout India. In Burma a community of Brahmus s known as Chelti jars from South India Infills an almost exactly similar function. Firms of short of the carry on wholesale trade in cotton grain cloth or sugar and worl as arhatiyas. Others again are bullion merchants as well while a few operate also as a jewellers and dealers in precious stones. They advance loans just as the banks do on stole so fronduce but the formalities are fewer and much less involted and if the conditions of security are less strict the rate of interest charged is somewhat higher. Loans are also made on promissory notes on personal security. The main

^{*}Published in December 1937

t Kotht-house

Cadd—L terally a mattress. The word however is commonly applied to the place of bu ness of a fire from the fact that it is no fourty it had for the clerks and accountants employed by Inhan busness houses to work study on the floor on mattresses. Even in a number of European controlled posted tanking concerns and uport a d export houses the cash ers and drofs at 11 follow the trad total mode of squarta go in the floor on mattresses.

activity of the shroffs, however, is the discounting of hundis or drafts and bills of exchange

Hundus—These drafts or bills are a cheap and convenient method of transferring money from one place to another and for obtaining credit There are two kinds of hundus, the darshm (literally—on presentation) and the muddati (literally—for a period), payable, respectively, as their names imply at sight or on presentation, and after a specified period. Bill brokers arrange transactions between buyers and sellers of these drafts the normal brokerage being from 3 to 6 pies per hundred rupees pavable by the buyer or by the individual or firm discounting the hundi. The discount rates for long term drafts such as muddate hundus may be high—as much as Rs 5 per cent in the case of wesk or doubtful prittes

Darsham Hundt—The darsham hund is the sight draft of day to day business and may be compared with the "demand draft" of the modern banking system. It is generally payable on presenta then but in some markets it is customiry to allow a few days of grace vo revenue duty is payable on daisham hundis.

Muddati hundi—The muddati hundi forms one of the most minimation timestruments of credit handled by the shroffs—Muddati hundis are generally drawn for any thing between 21 and 61 days though they may also be drawn for any other period—Very few of the commercial banks handle this type of paper. These drafts are written on Government stamped paper the stamp duty being Re 016 per cent for amounts up to Re 2500 and Re 240 to every additional Re 2,500 or part thereof.

The discount rates charged by the joint stock banks ordinarily any from one to one and a half per cent over the bank rate On the other hand the strofts have a highly elastic scale adjusted to the status of the discountries are status of the discountries as the status of the statu

From the brief description of the functions of the briks and the stroffs which has just been given it will be clear that both fanancial agencies have common objects but achieve these independently of each other, there being little practical relationship the ween the two The spread of modern banking facilities dates from recent years and has not always been available in numberpoint intade centres. The shroff, on the other hand is long etablished and his greater intimacy with his clients renders him better acquainted with their history and position. Accordingly, he is prepared to undertake risks which a bank would not be justified in entertaining with the knowledge at its disposal. The shroff there fore remains the main factor in the finance of distribution of the

agracultural commodities Measures are under contemplation by the Reserve Bank to bring the shroff within the ambit of the modern banking system and it is considered that the development of an open bill market, in which first class bills could be freely negotiated offers a solution to the problem

(5) REMITTANCES

In practice, only a small portion of the total value of the produce moved from one part of the country to another is required to be actually remitted because of the comparatively balanced nature of the trade in the various commodities. When necessary, remittances may be made in a number of ways, for example by means of bark drafts and telegraphic transfers, by cheque, by hunds and postal noney orders and even by currency notes sent by registered and insured post. The last two methods are followed only where small amounts are concerned or in the case of markets where no banking facilities exist.

The bank's commission on drafts which varies between 6 pies and Re 0.40 per cent' is usually subject to a minimum of Re 0.40 for small sums. The rates charged are in inverse proportion to the amount of the draft. The average commission on bank drafts—if such an average could be computed—would seem to be about Re 0.20 per cent (1/8 per cent).

The darshans hunds or sight draft is the most commonly used medium for the adjustment of accounts between traders in different markets Hundis may be sold at a premium or discount depend ing on the local demand for funds. The limits of premium and discount on hundis between any two places with established banks are determined by the cost of obtaining bank drafts For instance if a bank draft on Calcutta is obtainable at Cawipore at Re 020 per cent (1|8 per cent) the premium on Calcutta hundis would not ordinarily exceed Re 0 2 0 per cent for the obvious reason that remit tances would otherwise be made through bank drafts Where there are no established banks the limits of premium and discount are wider and may at times be as much as Re 1 per cent The discount rates on hundis also vary according to the status of the drawer or endorser hundis drawn or endorsed by well known houses being usually discounted on more favourable terms. It has been ascertained that the average cost of making remittances by hundis is somewhere in the neighbourhood of Re 010 (1/16 per cent) and is therefore lower than the charges made by banks for drafts

Railway receipts for goods consigned by rail are often sent through a bank or through another party well known to the consignor accompanied by a darsham kundi drawn on the consigner. The latter is given the railway receipt after duly honouring the draft. When there are long established and mulually satisfactory busness relations between two firms the railway receipts are sent direct to the consigne. If the amounts unvolved are small the documents may be forwarded by V. P. P. (Value Payable Post)

C -Cost of distribution

litms contributing to distribution costs are the charges for handling and transportation the commissions paid the cost of the bags used and other sundry charges incidental to the movement of the produce from the assembling market to the consumer's premises. These charges vary according to the extent of this movement and the channels through which the produce passes

When sales are effected directly by producers to consumers for domestic consumption or for crushing in the village ghants or even through village merchants or in the village hats the distribution costs are practically negligible

In cases where there are mills in or near an assembling market for example at Cawapore or Benares etc. in the United Provinces at Rapur and Nagpur etc. in the Central Provinces and at Patina and Gaya etc. in Bihar the only items constituting the cost of distribution are the cartage and handling charges from the market to the buyers mill or godowns and when bought from a pakke to the buyers mill or godowns and when bought from a pakke to the buyers of the strength of the same part of the major part of which moves by rail from the assembling markets a stage further to the ports or other more distant crushing earlies.

The distribution costs in the latter instance fall under 3 main items -

- (a) Expenses incurred at the assembling station up to the point where the linseed is put on rail at the station (or ghat if the journey is to be made by boat). These items include charges for cleaning bagging carting to railway station (or ghat) and station expenses (see page 163 Capter VIII)
- (b) Railway freight (or boat hire) to destination and
- (c) Expenses at destination These include charges for handling and transportation from station to buyers a godown arhat or the arhatiyas commission market expenses and octroi and terminal tax etc where levied

The expenses under item (a) are paid by the arhatiya or whole sale metchant at the despatching station while items (b) and (c) are paid by the consignee or commission agent at destination. The latter deducts the amounts so spent from the eventual sale proceeds of the goods and remits the balance to the consignor after deduction of commission.

Variations in charges at destinations take place not only from market to market but also in the same market as between different arhatiyas. It was observed that these variations were not so large and the charges certainly not as numerous as in the assembling

markets At destinations charges are always in cash-there being no

There are two methods of sale at each of the ports of Calcutta and Bombay, and the expenses payable by buyer and seller under the two systems differ At Calcutta they are known as Teb Kanta* basis and refraction guarantee basis In the former delivery of the goods is taken by the buyer from the seller's godown or from the market, and the charges for weighment are payable by the seller In the latter, delivery is given at the buyer's godown the cost of transport being borne by the seller and weighment charges are paid by the buyer The two systems at Bombay are known as Bazar Dharat (Bazar terms) and Delivery or Rail Dhara (Rail In the former delivery is given at seller's godown, brokerage is payable by buyer and the price quotation is based on gross weight including the bags, while railway or delivery terms imply, that the goods are delivered at the buyer's godown, brokerage is payable by seller and the price quoted on the net weight of

Many of the arhatiyas in the large markets, particularly at Calcutta and Bombay have printed circulars which they issue to clients giving a statement or proforma of expenses that would be incurred in selling produce through them Below is a translation of one such circular issued by a Calcutta commission agent

Teli Kanta Basis --

Commission	Rs A P
Brokerage	I 4 0 per cent
Dharmada (charity)	0 0 6 permaund
Pingrapole (home for cattle)	0 1 0 percent
Weighment	0 0 6 percent
Jalpanet	0 8 0 per 100 maunds
Stamps (for postage)	0 4 0
Committees	0 4 0 per railway receipt
Railway receipt expenses	0 1 0
- y - coorbo ex benses	0.8.0

The amount of sale will be credited to the client's account 30 days after the date of weighment

Paid to Indian Produce Association Calcutta

^{*}At a first glance the words ' Telt Kanta ' would seem to refer to a system At a first glaine the words 'Teli Kanta' would seem to refer to a system of weighing oilseeds from Teli meaning only or pertaining to oil (seeds) and if tale quale' or 'tell quel on a main analyst that the buyer subjects the lot offer indirection of the words appearance. The question of an analysis does not arrive at any stage in a human of the words. arree at any stage in a bargain of this nature

[†]Dhara-hterally flow and so by implication the current practice

[&]quot;Mater and Pan "to drink" The term was only met with in Bengal and refers to an allowance paid to the buyer's sample drawer

Refraction Guarantee Basis -

	Rs	A	P	
Commission	0	12	0	per cent
Brokerage	0	0	6	per maund
Dharmada	0	1	0	per cent
Pinjrapole	0	0	6	per cent
Jalpans and bill making etc	2	0	0	per 5 ton receipt
	3	0	0	per 10 ton receipt.
	4	0	0	per 15 ton receipt

The amount will be credited to the client's account 10 days after the day on which part payment is received

The Indian Produce Association Calculta (see page 199) has fixed the minimum charges which members of the association are mutiled to invoice to their clients but there is no bar to members charging a higher scale than the minimum fixed by the association. The minimum authorised charges are as follows the arhating being required to credit his client with the sale proceeds of the produce 30 days after weighment in the case of Teli Kanita basis and 10 days after receiving part payment from the buyer in refraction grarantee. The sales

	Tels Kanta basis	Refraction Guarantee basis
	Rs a p	Rs a P
Commission	1 4 0 per ent	0 12 0 per cen
Brokerage	0 0 6 per maund	0 0 6 per maund
Dharmada	0 1 0 per cent	0 1 0 per cent
Go eshala	0 0 3 per cent	
We ghment	0 8 0 per cent	
Ja anı	0 4 0 per 100 maunds	0 5 0 per ton

The various charges referred to in the preceding pages and the ¹ Ference in distribution costs in a few individual cases may be il ustrated by one or two examples

Below is a statement of expenses incurred by an oil mill at Nagpur on 105 bags of linseed brought from an arhatiya or commis sion agent at Pipariya (Central Provinces) —

	R_8	۸.	P
Cost of 232 maunds 1 seer linseed nett @ Rs 4-70 per maund	1 029	9	9
Cleaning @ Re 1 per 100 bags	1	0	9
Weighing @ Rs 180 per 100 bags	1	9	3
Cost of bags @ Rs 22-12-0 per 100 bags	23 1	14	3
Twine @ Re 1 per 100 bags	1	0	9
Commission @ Re 0120 per cent	7 1	1	6
Dharmada @ Re 010 per cent	0 1		
Carting to station at Pipariya @ Re 006 per bag	3	4	6
Station expenses at Pipariya	2 (_	
Hundi charges @ Re 020 per cent	1 5		0
Railway freight @ Re 078 per maund on 235 maunds gross	112 10	0	
Terminal Tax at Nagpur @ Re 003 per maund	3 10		
Station Broker (dalal) at Nagpur	0 4	0	
Cartage at Nagpur @ Re 009 per bag	4 14	9	
— Total	1 193 9	-0	

The total distribution costs between Pipariya market and the Nagpur oil mill thus amounted to Rs 163 153 or 159 per cent of the value of the produce at Pipariya The price delivered at the Nagpur mill was made as follows -(a) cost of linseed at Pipariya expenses 43 per cent (b) railway freight 94 per cent and (c) other expenses 43 per cent

Below is quoted another instance giving the expenses incurred on a consignment of 10 tons (120 bags) linseed despatched by a wholesale merchant at Uskabazar (United Provinces) to Calcutta for commission sale and eventually sold there to an exporter

189						
(a) Expenses at Uskabazar	Rs	Δ	P	Rs	Δ	P
Cost of 120 bags @ Rs 25 per 100 bags	30	0	0			
Sewing charges and cartage to Uskabazar station @ Re 0 0 6 per bag	3	12		••	10	^
			_	- 33	12	0
(b) Raılway freight from Uskabazar to Calcutta—					_	
Railway freight @ Re 0811 per md				150	8	0
(c) Expenses at Calcutta						
Deductions made by buyer—						
Jalpanı @ Re 050 per ton	3	2	0			
Demurrage*	8	2	0			
Brokerage @ Re 0 0-6 per maund	8	6	6			
Excess refraction found by buyer after analy sis over and above the 5 per cent free tolerance equivalent in weight to 6 mds 18 srs @ the contract price of Rs 5-4 6 per maund		1	6	- 53	12	0
Deduction made by the pakka arhatiya at Calcutta						
Commission @ Re 0 12 0 per cent	10	10	6			
Dharmada @ Re 0 1 0 per cent	0	14	3			
Pingrapole @ Re 0 0 3 per cent	0	3	6			
Kali Mar† @ Re 0 1 0 per railway receipt	0	1	0			
Committee @ Re 0 1 0 per railway receipt	0	1	0			
Stamps (postage fees)	0	4	0			
	_		_	- 12	2	3

Total *Rent levied according to the Port Commissioners' scale of charges for the penod the consignment was lying in the Kantapuker general sheds (see page 147)

250

[&]quot;Keit Ma----' Mother Kah A charge levned for the purpose of making offerings to the Goddess Kah whose temple at Calcutta is well known not only throughout India but to many visitors from all over the world

The consignment weighed 269 maunds net and was sold @ Rs 5.4-6 per maund for Rs 1.420 10 6 which was shared by different agencies as detailed below —

actaned below —	ared by differen
Price of 269 maunds of linseed at Calcutta Rs 5 4 6 per maund	Rs A P
Deduction by buyer for refraction in excess of the per cent free tolerance allowed at Calcutta	1 420 10 6 he
Price of the consignment at Calcutta on the customary refraction basis	34 1 6
Other deductions made by the buyer at Calcutta	1386 9 0
Amount actually received by the commission agen at Calcutta from the buyer Deductions made by the commission agent and de bited to the upcountry chent	t 1 366 14 6
Price f o r Calcutta Deduct railway freight	1 354 12 3 150 8 0
Price f o r Uskabazar Cost of bage and other expenses at Uskabazar	1 204 4 3 33 1° 0
Net price* obtained by the consignor at Uskabazar market	1 170 8 3

The distribution costs including Rs 3416 the allowance for Cxces, refraction amounted in this case to Rs 200°3 or 213 per cent of the value of the lot Excluding the said allowance the costs worled out to 184 per cent of the value of linseed at the point

The price paid by the exporter at Calcutta for this consignment was made up as follows (a) cost at assembling market \$24 per cent (1) railway freight 105 per cent and (c) other charges 71 per

The costs of distribution between a number of other markets are given in Appendix VIIII from which it will be seen it at ther may vary from a few anness to over a rupee per manual Obronsily such costs must increase according to the number of times the commodifive changes hands before it reaches the final consumer or exported Apart from the charges for transportation and handling other items such as commission brokerage and charity are invariably paid every time the ownership of the goods changes

^{*}This is not the equivalent of the price eventually obtained by the produce Λ number of other deductions on account of assembling charges have to be taken into account (see Chapter V)

The largest variable factor in the distribution costs is railway freight which not only varies according to distance but also as to whether any special freight rate is allowed between two particular points

On the whole it would appear that distribution costs are not undul high although such items as deductions for charities (dharmada) municipal taxes (octroi and terminal tax) and station expenses seem to require consideration. The first two items have already been referred to in Chapter V. As regards station expenses these comprise extra payments and miscellaneous expenses that have to be incurred at the two ends of the railway journey. These charges are debited to the consignors and eventually are indirectly realised from the primary producer who receives a lower price in consequence They are seemingly small when regarded individually but in the aggregate a very conservative estimate would place them little short of Rs 1 lakh each season for linseed alone

D.—Total assembling and distribution costs—the price spread from consumer to producer

The total assembling and distribution costs incurred from pro ducer to consumer can best be illustrated by a concrete instance The following is an analysis of the actual expenses incurred on a consignment of linseed sent by a Gonda (United Provinces) merchant obtained through the courtesy of a Calcutta firm of arhatiyas The market charges at Gonda have leen based on enquiries made in Bargaon market at Gonda

Value dance	Rs	A	P	
Value of 120 bags containing 269 maunds 16 seers linseed				
rad by buyer at Calcutta (a) Rs 4 10 3 per maund	1250	3	0	
Deductions made by the buyer—				

Refraction in excess of 5 per cent RSAP equivalent to 1 maund 26 seers 13 chs 7 12 0 Jalpani Rs 7 and cashiery* Rs 2_Rs 9 per 100 tons 0.14 Drawing up of the bill Re 020 and brutty† Re 003 per bill Demurrage (on 10 tons for I week @ Re 030 per ton per week) 1 14 0 Brokerage @ 15/16 of Re 006 per maund 7 13 6 Amount actually received by the pakka arhatiya at

Calcutta *Cashiery-A hybrid term signifying hence an allowance or remuneration for work involved in making payments

18 8 3

1 231 10 9

Britty-A retaining fee or allowance

		RSAP
Brought forward		1 231 10 9
Deductions made by the pakka arhatiya at Calcutta—		
	Rs A P	
Commission	9 5 6	
Brokerage	0 9 0	
Dharmada	0 12 6	
Pin j ra p ole	0 6 3	
Railway receipt expenses	1 15 3	
Committee	0 1 0	
		13 1 6
Amount due by the pakka arhatiya at Calcutta to his client at Gonda		1 218 9 3
Deduct—		
Remittance charge (hundi discount)	0 12 3	
Railway freight from Gonda to Calcutta	143 10 0	144 6 3
Amount actually received from Calcutta	by the mer	1074 3 0
chant at Gonda		10/4 5 0
Expenses incurred by the Gonda mer chant in despatching linseed to Caloutta—		
Cleaning	3 12 0	
Cost of B Twill bags @ Rs 24 per hundred	28 12 9	
Twine	0 9 6	
Cartage to Gonda station @ Re 0 0 4½ per bag	2 13 0	
Station expenses	2 0 0	
		37 15 3
Net amount received by the Gonda in	nerchant –	1 036 3 9

This is equivalent to Rs 3 13 6 per maund or about Re 0.129 per maund less than the Calcutta price Enquiries at Gonda how ever show that the merchants there reckon to buy at an average

difference between Calcutta and the local price of about Re 0 14 0 per maund For all practical purposes therefore the buying price of the Gonda merchant may be taken as Rs 3 12 3 in this instance

of the Conda merchant may be taken as 165 o 12 o in	trus matunec
Price paid by the Gonda merchant @ Rs 3 12 3 per maind assuming the weight delivered and paid for at Calcutta to be the same as the weight purchased and despatched from Gonda	Rs A P
Charges levied on the merchant at Mds Seers Gonda—	
Zamındarı and Chaudharı ¹ @ 3½ seers per cart	
Tulan² @ 3 seers per cart	
Palledari ³ @ 3 seers per cart 5 21	
Sundry charities @ 2½ seers per cart	
Bhandarı kaharı, etc @ 1 seer per cart	
Gadd: Kharch ⁵ @ 1 seer per maund	
Dhalta ⁶ @ 1 seer per maund	
Total deductions in kind 19 1	
Rs a P	
Phut Latoti @ Re 0 7 0 per cart 7 7 0	
Dharmada (charity) @ Re 0-1 0 per cart 0 10 3	8 1 3
Price obtained by the seller at the Gonda market for 288	- 013
maunds 17 seers, \imathe (269 maunds 16 seers \perp 19 maunds 1 seer)	1 006 6 0

¹ Zamindar and Chaudhari—Zamindar tax payable to the zamindar who has happen to be the owner of the market. Chaudhari fee payable to the manager or contractor employed by the zamindar

Equivalent price per maund

² Tules-weighing charges

³ Palledon-handling and manipulation charges paid to the market labourers (palledars)

⁴ Bhandart-storekeeper

Kahari-a menial (female) who cleans cooking utensils

⁵ Gaddi-Kharch-a deduction made to defray office expenses

⁶ Dhalta-weight allowance for "draftage

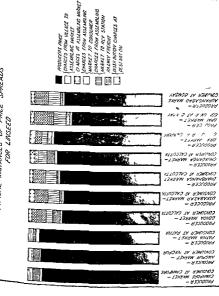
⁷ Phut Katoty-deduction for giving change

Taking the distance between market and village to be say 6 miles cost of transport to the market may be reckoned as for Re 011 per maund, leaving the grower with Rs 369 per maund as the price fetched by his produce

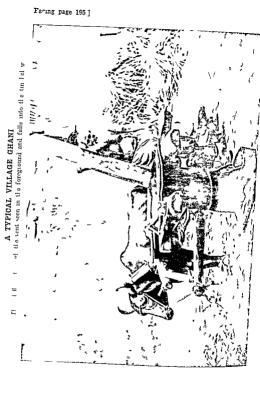
produc	er may now
Percentage of the price paid by the consumer	
n 73.7	
:	
7 5	
	81.2
	18 8
	100.0
	100 0
	Percentage paid by a 73 7 t

From this it would appear that 73 7 per cent of the consumer's price went to the producer. It must however be noted that the difference between the consumer's and producer's price depends on a number of factors. In the case illustrated above the wholesaler's margin at Gonda has been taken as only Re 0.13 per maund and it has been assumed that the Gonda merchant who forwarded the consignment to Calcutta bought the goods in the market directly from a producer. Actually, however the linseed may have first passed from the producer to a ullage merchant before coming to market so that the total value paid by the village merchant to the producer to the first instance and the price received by the former when as the goods may have changed hands several times between the market and its eventual destination with the result that the share of the consumer's price would diminish every time the goods changed ownership, the more so when both parties act as principals in which event there is always a difference in the buying and selling prices

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FROM ASSEARD



All these elements tend to reduce the proportion of the consumer's pnee received by the producer On the other hand the grower may get a larger proportion of the price when the seed is sold direct to an oil mill at or near the assembling markets

The price spreads between the producer and consumer in different markets are summarised in Appendix MIIII and illustrated in the diagram facing price 194. The producer's share in the ten representative instances taken varied between 677 per cent and 912 per cent of the price paid by the consumer assuming in all cases that the produce was brought to the assembling market direct by the producer. The amount of linseed brought by producers has been estimated to form one fifth only of the total quantities brought to the assembling markets through vally while three fourths reach the assembling markets through valling merchants and beoparis. In such cases the share received by the producer would be less than that shown in the representative instances given Allowing for this factor, it may be reckoned very roughly that on an average the cultivator's share of the price paid by the consumer cannot be much more than about 60 per cent only

E-Trade Associations and trading in futures

(1) NUMBER AND LOCATION

Organised trading in linseed is confined only to Calcutta and Bombay. The associations concerned number eight and are as follows.—The Calcutta Wheat and Seeds Association, the Indian Produce Association and the Calcutta Grain, Oilseed and Rice Association all at Calcutta Those at Bombay are the Grain Merchants Association the Marwad Chamber of Commerce, the Seed Traders' Association and the Grains and Seed Brokers' Association

(2) Objects, constitution, membership, and source of revenue

The main objects of these institutions are essentially the same, namely, to promote and protect the interests of the trading community dealing in primary produce such as oilseeds and cereals, to frame rules and regulations for the conduct of sales and purchases, to establish uniformity in trade usages and to provide facilities for attitution in disputes. None of the associations above mentioned participate in the buying and selling of produce either on their own behalf or on their members' account. A very important function of the majority is to serve as a clearing house for the adjustment of clams and liabilities resulting from transactions between their members are provided in the production of the members are considered from the production of the members are provided in the production of the production of the production of the provided in the production of the

Most of the associations to which reference has been made above constituted under Section 26 of the Indian Companies Act, 10, on a non profit sharing basis the relevant section laying down that

the property, capital and income of an association be applied only towards the promotion of its objects and that no bonus or dividend be paid to members past or present, except on the winding up of the company. In this respect the associations concerned are on a somewhat different footing from the great majority of the institutions handling transactions in wheat and other commodity "futness particularly those in the Punjah and the United Provinces Ibic latter are registered under Section 13 of the Act and their Memoranda and Articles of Association entitle them to carry on the business of banking warehousing merchants and commission agents in any article or commodity to lend or miest the moneys of the company in commercial enterprises or any other kind of undertaking and to enter into arrangements for the sharing of profits. Both types of associations are with himstel liability.

Membership is open to persons or firms engaged in trading in agricultural produce. An entrance fee is payable on election and an annual subscription is charged from the members

The admission fees and subscriptions payable by ordinary members of the different associations are tabulated below —

memoria of the district and district below				
Calcutta	Admission fee	Annual subser ption		
Calcutta	Rs	Rs		
The Calcutta Wheat and Seeds Association	599	49		
The Indian Wheat and Seeds Association	11	12		
The Indian Produce Association	1 101	24		
The Calcutta Grain Oilseed and Rice Association	25	60		
Bombay				
The Grain Merchants Association	51	25		
The Marwadi Chamber of Commerce	500	51		
The Seed Traders Association-				
Merchant Class	20	11		
Broker Class	51	21		

The sources of revenue of most of the above associations are derived from subscriptions arbitration survey and tender fees and fines. The Indian Produce Association, Calcutta has an additional source of income in that members of that body charge their client Re 0.10 for every transaction entered into by them. This money is paid into the funds of the association and goes towards the main tenance of the various services provided by it.

The management of these associations is invariably tested in a bard or managing committee composed of various offee begrewinch usually include a President one or more Vice Presidents a Secretary and one or more Joint or Assistant Secretaries and members whose numbers was wave yet from 7 to 30

(3) Business methods of different associations.

The services and facilities offered, and the terms and conditions imposed on their members by the different associations are in the main similar. The quality of linseed, the basis of refraction, the scales of allowances for excess refraction, the procedure to be followed in drawing samples, the analysis of samples, the months of delivery and settlement, the routine for conducting settlements and unit of transaction for "futures" contracts are all defined and members are bound to abide by the rules and regulations of the association and to refer all disputes to arbitration

The sphere of influence of each association is determined by long isage and sometimes by mutual agreement. Each deals in different commodities or different types of transaction. For example, at Calcutta, the Calcutta Wheat and Seeds Association, and to a smaller extent the Indian Wheat and Seeds Association are primarily engaged in the regulation of trading in Insseed (and wheat) if futures "while the Indian Produce Association controls the conduct of transaction in "actuals" or ready goods. At Bombay ready business in Inseed and other oilseeds and grains is subject to the rules of the Grain Merchants' Association while trading in Inseed "futures" comes under the auspices of the Marwari Chamber of Commerce*

The following is a more detailed description of the modus of perandi of some of the associations referred to above

The Calcutta What and Seeds Association was first registered in 1920 and has 187 members. Its offices are located in rented premises in a building in Cotton Street. The actual trading in inseed (and wheat) takes place in a paved courtyard between two high buildings a number of rooms of which are rented by firms of brokers (see plate opposite page 198). The rooms in the upper floors are largely used for residential purposes and have common access to balcomes on each floor directly overlooking the courtyard.

The unit of transaction is 10 tons and values are quoted in multiples of 1½ pies per manual. The opening and closing rates are challed up on a board daily. Transactions are between members only and the hours of business are usually from 8.30 a.m. to 5 p.m. on week days. On Sundays the market is open for two hours only in the morning between 9 and 11 a.m.

Transactions are entered in a note book and each party's signature is taken. No contracts are exchanged although the association actually has a printed contract form a copy of which is given in Appendix XXXVI Ordinarily, every member is required to be covered by a guarantor but it is understood that this condition is not always insisted unou

Since January 1938 the Seed Traders Association, Bombay, has opened a lineed contract on the same basis as the Marwadi Chamber of Commerce Litting

All contracts are subject to a weekly settlement at the downg rate* at 430 P w each Saturday, as determined by the Committee of the association

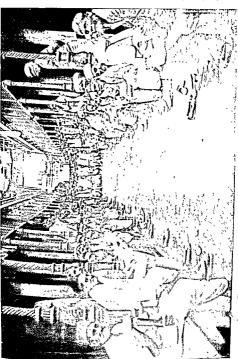
The difference between the rate at which the contract is standing and the settlement rate fixed by the Committee is payable or recoverable as the case may be on the total quantity of the contract. Bayers and sellers are responsible for maling out their own midridual accounts and these are sent to the office of the association at the latest by noon on the following Monday. The association flaws upcash slips against those parties who are debtors and they are required to settle all sums due from them by 8 p.m. the same evening Faiture to do so results in the defaulter being posted as insolvent on the following morning his guarantor being called upon to settle all outstanding accounts:

After the tenth day of May and September—the two delivery months—no fresh transactions can be entered into for the months in question. The due date in both cases is the first day of the month following the settlement month. Both buyers and sellers may exerce options between the 11th and the last day of the settlement month. Railway receipts for goods consigned but not yet received in Calcutta are accepted up to the 25th day of the delivery month.

Should buyers fail to take delivery of the goods sellers have the oppon of re selling in the open market on account and risk of the buyers. On the other hand if sellers fail to give delivery buyers are entitled to a compensatory allowance at the rate of Re 010 per maund plus the difference between the contract rate and the rate fixed by the Association on the due date

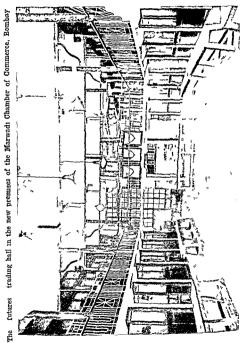
The actual quantities outstanding for delivery on due date are only a small proportion of the total contracts entered into Un fortunately individual contracts are not registered with the association so that it is impossible accurately to gauge the volume of futures transactions at Calcutta (or even at Bombay) Enquiries however show that 2 000 to 5 000 tons may be regarded as a normal day s turnover Sometimes however during hectic periods of trading when prices are fluctuating violently or the market is very firm or very weak contracts for as much as 50 000 tons may change hands in a day At the very lowest estimate therefore not less than 600 000 tons of linseed (more than the entire Indian crop) are bought and sold in one season at Calcutta Actually this figure must be very considerably exceeded if due regard be paid to the periods in which the market moves rapidly one way or the other and it would probably be more correct to compute the volume of futures trading as some where between 1 and 2 million tons annually-possibly more

[&]quot;The rate so fixed was often found to be an average of the curred buying limits on the Saturday of rivo large exporting firms particularly dungs the height of the season when both are usually active buyers. The powerful influence of the export demand on the price level in India will therefore be readily appreciated.



in Calcutta is conducted Nort -This is the place where almost all the "

Facing page 199]



As railway receipts and delivery orders tendered in settlement of May and September transactions pass through the books of the association it is possible to association the actual quantities of linseed delivered in liquidation of futures contracts. The data given in the following table show that during the last three years actual deliveries formed an infinitesimal proportion of the total volume of futures.

Futures' cortracts settled by actual delivery at the Calcutta
Wheat and Seeds Association

		(Tons)				
	1935		1936		1937	
Tenders made by —	made by —	Septem ber	May	Septem ber	May	Septem ber
Railway Rece pts	720	620	1 930	2 000	140	530
De very Orders	1 350	3 590	440	2 960	50	2 420
Total	2 070	4 210	2 370	4 960	190	2 940

The Indian Wheat and Seeds Association has no trading ring Business between members of whom there are 133 is transacted through the 72 brokers affiliated to the association who personally visit sellers and buyers or communicate with the parties by telephone on completion of a deal the sellers representative goes round to the buyer as soon as convenient but usually not later than the day following the transaction and secures the signature of the party converting the form of the contract is then registered with the association

The total quantities of linseed involved in the contracts recorded by the association were as under during the past 4 years —

	Lons
1934	22 000
1935	45 000
1936	35 000
700=	99 130

The Indian Produce Association is a body composed of 99 whole sale dealers and brokers. It regulates the usages of trade in respect of ready transactions as between parties in the internal trade only The association operates the merchants shelter at the Howard goods sheds which provide a focal point and a convenent market for spot trading in all kinds of grains and seeds arriving by rail. This association is not concerned with futures trading and in common with the other associations at Calcutta and Bombay it does not handle pledge goods by malling advances against such.

The Calcutta Grain, Oilseed and Rice Association—This is a small association recognised by the Bengal Chamber of Commerce since July 1884, now composed of 12 members of whom 3 belong to the Chamber Its chief functions are to promote and protect the interests of its members, to maintain uniformity in rules, regulations and trade usages and to adjust controversies between them. The two largest exporting firms do not belong to this association although both are members of the Bengal Chamber of Commerce, and the association plays little part in the liniseed trade

The Grain Merchants' Association, Bombay—This is probably the oldest established body in the country, engaged purely in the regulation of the grains and oiseeds trade. It was formed nearly 50 years ago and has a membership of 325. It has no direct concern with "futures" trading in linseed, the option market for which is administered mainly by the Marwach Chamber of Commerce The Association is primarily interested in promoting the interests of its members and in regulating trade practices in the local market with particular reference to delivery contracts and ready transactions. The association has a well equipped department for the analysis of all kinds of grains and seeds handled at the port. It also maintains price records for a number of primary products. The scales of allowances for various commodities approved by the association are now recognised and accepted by all sections of the grains and seeds trade at Bombay.

Closely associated with the Grain Merchants' Association is a kindred body established for some 20 years or more, known as the Seeds Traders' Association It has a membership of 230, the majority of whom are also members of the Grain Merchants' Association to constitution is similar to that of the older body but nursely advisory functions it controls the "futures" market for groundnuts, cottonseed, castorseed and certain other oil seeds It is interesting to note that trading in linseed "futures" for which there have been provisions in the rules of the association for many years has recently been resumed. The Seeds Traders' Association rents a small building in proximity to the Dana Bunder market which is also near the office of the Grain Merchants' Association. The courty and within this building has been converted into a trading ring in which the brokers congregate daily. The streets in the neighbourhood are mostly occupied by merchants offices and godowns.

The Moruadi Chamber of Commerce—The "futures" market for imseed in Bombay until lately was controlled exclusively by this association which has recently moved into a new and spacious building on Kalbadevi road. A number of amenites are provided by the Chamber, amongst which is a spacious trading hall (illustrated opposite page 199) surrounded by conveniently situated room-rented out to members, and fitted with telephones. The Chamber consists of 232 members of which, as its name would imply, a large proportion are of the Marwari community. Membership is divided

mto 4 sections and embraces commission agents $\mathit{muccadams}^*$ brolers $\mathit{shroffs}$ or bankers

The methods adopted by the Marwadi Chamber of Commerce in regulating futures 'trading in linseed are very similar to those of the Calcutta Wheat and Seeds Association which have been described in some detail earlier in this section. The unit of transactions is larger at Bombay 112 25 tons as against 10 tons at Calcutta but the months of delivery are the same (Vay and September) the other hand the Marwadi Chamber's contracts are subject to a monthly settlement the difference Letween the contract rates and the actual values ruling on the 25th day of the delivery month as fixed by the Board of the Chamber being adjusted on the last day of the settlement month The Association does not act as a clearing house in the sense of receiving payment from or making payment to members on account of monthly differences The onus of making up their own accounts is placed on the trading members themselves and payments and settlements of differences are effected directly between the members concerned The Chamber is mainly concerned with checking delivery orders when the delivery months come round in order to fix the last buyer by whom the goods have to be taken delivery of

The quantities of linseed actually delivered in settlement of out standing futures contracts will be seen from the following table —

Futures" contracts settled by actual delivery at the Mainadi Chamber of Commerce, Bombay

		(Tons)				
	1932	1933	1934	193a	1936	1937
May September	4 57a 7 5a0	3 325 19 825	8 200 21 300	3 850 11 125	7 050 28 07a	5 975 5 825
Total	12 125	23 150	29 500	14 970	3 o 125	11 800

The Bombay Gram and Seeds Association is an association of comparatively recent origin. It is closely associated with another body called the Bombay Gram and Seeds Brokers. Association in whose premises futures trading by members of both bodies takes

[&]quot;In the trade the word is usually spelt as given in the text it should more correctly be spelt Mugaddam meaning literally "first or chair." The term was reignally, and the word of the spelt of the term was below contractor. On the west coast of left at it word has acquired a will shour contractor. On the west coast of left at it word has acquired any at spide to the middlewed who figure largely in the Bombar Fram and dilseeds trade and will be for the first spelt of the spelt spelt of the spelt spel

place in units of 5 tons only. Its rules appear to be similar to those of the Marwadi Chamber of Commerce but little or no control over the forward transactions of its members seems to be exercised as the association has apparently more than once had to suspend business for considerable periods. During a part of 1937, for example it was magnitumd

It might appear that such an institution caters for the small trader. Such is probably the case to some extent but evidence is not lacking to show that where the unit of transaction is small a some what irresponsible speculative element predominates in the market concerned. Control becomes lax and with the absence of any intention, and frequently the mability, to give delivery the real purpose of a "futures" exchange is frustrated and may on occasions have serious repercussions on the markets outside. Size and finat cal stability are essential pre-requisities in any institution handling trade in "futures". Members should be required to make a heavy deposit with the association so that large stakes which each firm or individual world thus possess would tend to create a greater sense of responsibility.

It will have been observed that normally the volume of 'futures' transactions inquidated by actual delivery is far greater in Bombay transactions inquidated by actual delivery is far greater in Bombay than at Calcutta. Two factors are mainly responsible for these conditions. In the first place Calcutta is a large milling centre and consumes far more linead than Bombay. Considerable stocks of inseed are held by the mills at Calcutta amounting in some years to as much as 15 000 tons monthly between the period May and September. These supplies are railed to the mills' own sidings in virious parts of Calcutta and the suburbs and are kept in their virious parts of Calcutta and the suburbs and are kept in their option by brokers handling the business of the mills are reversed according to the requirements of their principals as convenient that as far as can be ascertained no linseed from these sources is erer tendered.

Another reason for the comparatively large quantities of lussed tendered in liquidation of "futures" contracts in Bombay would appear to be in the fact that the greater uniformity of procedure which appears to exist in all sections of the trade at Bombay mairs such large deliveries possible with a minimum of friction or disputes

At Calcutta conditions were found to be somewhat less sate factory there being a wide gulf between some of the usages as practised by shippers and those adopted by sellers notably in the matter of sampling and analysis and it has been observed that no large shipper would willingly tender linseed against option sales in Calcutta if such a course could possibly be avoided owing to the uncertainties attendant on such a procedure under present could itoms. The general adoption of a standard contract as indicated in Chapter VI the unification of market customs and their man tenance by a joint representation of shippers and other buyers and sellers in the form of an association or committee somewhat on the lines of the Joint Urain and Seeds Committee at Karach would probably go a long way to promote smooth working in this market.

INTER-CHAPTER NINE

It is difficult to say in many cases how much the producer actually gets for his linseed. Barter arrange ments and payments and deductions in kind make the calculation complicated. When the grower takes his linseed to be crushed in the village ghan he may take in return all the oil and leave the cake, or alternatively he may be given 18 to 22 per cent of the weight of the linseed in the form of oil. This represents about two thirds of its oil content. When he takes linseed to a market where large oil mills are located, the producer may be fortunate enough to get over 90 per cent of the price paid, but on an average it would appear that the cultivator only gets about 10 annas in the rupee paid by the large mills and exporters.

In distributing markets many of the market charges levied in assembling markets are repeated. Two or three more charities are usually provided for, along with charges like jalpani and payments to the cashier for drawing up the bill. Other new charges also are to be found such as phut katoti, which is sometimes exacted at the rate of 7 annas per cart merely for giving change. Seeing that Inseed frequently passes through more than two markets, the cumulative burden on the producer, of these various market charges can be appreciated and some action is urgently required for their regulation.

The business of distribution is mainly done by the pahha arhatiya who procures his supplies through the hachcha arhatiyas in the assembling markets. The large exporting firms at one time used to maintain buying agents upcountry but following the depression of 1931 most of these were withdrawn and the business conducted very largely through guarantee brokers. The amount of linseed distributed by cooperative organisations is

absurdly small—the few sales by co operative sales societies in Bombay, for example, do not exceed 25 tons per annum

The finance of the trade is mainly in the hands of the indigenous bankers (shroffs) and the pakka arhatiyas who customarily advance 70 or 80 per cent of the value of the goods sent to them for sale on commission rate of interest charged on such advances varies with the state of the market and the financial status of the client but it is generally between 6 and 9 per cent per annum Joint stock banks do a certain amount of business at the larger centres where the godowns can be brought under their direct control but in the main shroffs, by their more intimate knowledge of their clients, are in a better posi tion to do business in the smaller centres and can safely make advances which would be regarded as too risky for a bank with the limited knowledge at its disposal It would seem therefore that the shroff will continue to remain the main factor in financing the distribution of Imseed and this business could apparently be facilitated by the development of an open bill market for negotiating first class hundis

The trade at the terminal markets of Bombay and Calcutta is governed very largely by four associations at each centre. There is one desirable feature about these associations namely that they are all non profit sharing institutions. One or two of them however do not appear to insist on sufficiently large admission fees and subscriptions from their members and this always tends to raise doubts as to the stability of the association concerned Particularly in the case of those associations controlling a "futures" market stability is essential and the more this business can be concentrated on the premises of the larger associations the better, since this tends to limit the amount of irresponsible speculation which is too common

a feature of a small association Unlike wheat there are no trade associations dealing in linseed "futures" located in upcountry centres, and the provision of a limited number of "futures" linseed markets controlled by local associations upcountry, is a matter which might Bombay and Calcutta it seems desirable that the various associations concerned at each centre should take steps to secure a greater uniformity in the local market practices and that this might be secured by a joint representative body of the various associations somewhat on the lines of the Joint Grain and Seeds Committee which already exists at Kaiachi A closer union of all the bodies con cerned in an all India trade federation would bring about

quite well be taken into consideration by the trade At a still greater degree of co ordination and uniformity in market practices

CHAPTER X-THE MANUFACTURING AND DISTRIBUTION OF LINSEED PRODUCTS

A -- Linseed crushing

Linseed crushing appears to have been practised in India from the remotest times but milling as an organised industry dates from comparatively recent years. Prior to 1900 less than 10 per cent of the total crop was retained in India for seed requirements for dimestic consumption and for crushing. During the three years in mediately preceding the War India's retention had increased to an average of about 28 per cent of the crop and by the trennium ending 1936 37 as much as 51 per cent of India's linseed product on was utilised within the country. As indicated in Chapter II it is estimated that during this period about 42 per cent of the total production was utilised for the manufacture of oil and cake

(1) Types of crushing establishments

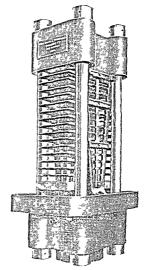
Linseed is crushed under two distinctly separate conditions (a) in the village ghants the motive power for which is generally supplied by bullocks and (b) by power driven mills and rotary ghenis

- (a) Village ghanis The ghani also known as a holliu or chekku (the latter being the term generally given in Southern India) are used for the expression of oil from practically any kind of oilseed and although they may vary in point of size and detail of construction the main principle of operation is exactly the same A typical village gham shown in the illustration facing page 190 consists of a mortar made of wood-generally the hollowed out trunk or a tree-in which a wooden pestle is rotated The pressure brought to bear by the pestle on the oilseed within the mortar is regulated by Heans of weights consisting of large stones The extraction of oil in a village ghan is a somewhat slow process For example it has been ascertained that the smallest sized ghan normally encountered in certain parts of the country may take the greater part of the day to handle 4 or 5 seers of linseed while the larger ghans may be capable of dealing with more than one maund of linseed per day The variable factors are of course the number of draught animals u ed their size and strength and the number of hours worked per day
- (b) Power driven mills and solary ghans —The power driven oil mills operate with one or other or a combination of any of the following types of machinery —(i) hydraulic presses (ii) expellers
- (1) Hydraulic Presses—The oilseeds are first ground by rulers on ake meal which is then heated in steam jacleted kettles. The meal having been heated and moistened to the required degree is drawn off in equal charges by a moulding machine (hydraulic or steam) which compresses the meal to a certain extent and wraps it in

Two expellers operating under ording y work ng condit ons

facing page 207]

An Anglo American hydraulic press



By courtesy of Mess & Marshall Sons of Co (Inda), Linked]

a press cloth The compressed charges of meal covered by the press eloth are inserted between the plates of the presses, and subjected to pressure from hydraulic pumps either directly or through accumu lators-the maximum pressure being about 2 tons per square inch The oil flows from the sides of the presses and is collected in tanks The residue—the cake—is removed from the press after the pressure has been released

The presses may be open type, known as Anglo American presses (see plate opposite), or of the closed type known as cage presses The former are generally used for linseed whilst the cage presses are often used for oilseeds with a higher oil content such as groundnut and castor

- (u) Expellers -Although some oil seeds are crushed in the expellers whole and either hot or cold, hinseed is generally fed into the expeller after being rolled into meal which is heated and moistened in a long steam jacketed trough fitted over the expeller. The extraction of oil takes place within a steel cage by means of a series of hardened steel worms, so arranged on a shaft which revolves as to produce gradually increasing pressure as the seeds are carried from one end of the cage to the other The oil is expelled through the per forations in the cage and the residual cake is forced through the end of the cage opposite to the feed. This is clearly seen in the plate facing page 206 which shows two typical expellers in action
- (m) Rotary ghants -- The rotary ghants driven by mechanical power are similar to the village ghans in principle, with the only difference that both the mortar and the pestle revolve, the latter being made of cast iron instead of wood The lay out of a typical oil mill using ghams will be seen from the photograph facing page 208 while a close up view of the ghanis given in the plate facing page 209 will enable the constructional details to be clearly seen Rotary ghants are invariably worked in pairs and they may be grouped together in any number of units ranging from one or two pairs to several hundreds The pressure exerted by the revolving Pestle derives from heavy cast iron weights carried at the end of an arm one end of which is directly connected to the pestle

Other types of machinery for oil extraction such as cage and screw presses and solvent extraction plants are seldom used for crushing linseed in India It must, however, be noted that the plant used in the linseed crushing industry is also suitable for the treatment of other kinds of oilseeds and most of the mills use the same machinery with necessary adjustments, for the handling of other oilseeds eg, mustard, rape, toria sesamum, groundnut, etc

(c) Comparison of different types of plant -Each type of plant has its own particular advantages or disadvantages For example a village ghant requires very little capital investment, no engineering tall whatever to maintain it and at the same time provides the cultivator with employment when he is not occupied with other agricultural operations Moreover when a ghani is operating in an area in which

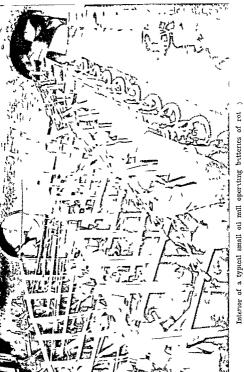
a particular oilseed is produced and its oil and cake consumed locally, transportation costs are very largely eliminated to the benefit of producer and consumer. The main drawbacks of the gham, however, are in the slowness of its operation and its inefficiency in that a rela expended by the operator of oil is left in the cake. If the labour on a cash basis crushing by gham would appear to be an economically unsound proposition.

The hydraulic press, with the other machinery involved in its orderation such as rolls heating kettles, hydraulic pumps, accuminators, cake paring machines, etc., require a large initial outlay, a considerable extent of space for installation and a good deal of labour for operation. On the other hand hydraulic press cake fetches a higher price than expeller cake in export markets

The expeller which appears to have gained considerable favour with millers in recent years is a self-contained and comparatively small until which requires a small ground space and can be run with little labour (See plate facing page 212). It is moreover claimed that it produces a lighter coloured oil than the press. Be that a it may, the former advantages have given an impetus to the instillation of expellers in recent years and their number has greatly in creased. It is reckoned that the total number of expellers operating in India on different oilseeds is probably somewhere between 600 and 700.

The rotary gham is a computatively crude piece of mechanism which is not only wasteful in power consumption but also fails to attain the efficiency of the hydraulic press or the expeller I appears to be capable of consideration in the subject is worthy of serious consideration. The main points in fivour of the rotary gham however, are its adaptability for different oisseeds its low initial cost and the fact that almost all the parts are made locally often on the premises of the mill itself. Its parts are made locally often on the premises of the mill itself. Its rape as the oil produced by certain oilseeds such as mustard and rape as the oil produced by the slow rate of expression comparable odour and pungener. Although this factor is of no special importance in Inseed Imseed oil produced by village and rotary gham commands a decided preference over expeller or press oils in certain actible purposes

Although the efficiency of the village gham cannot be compared with modern machinery and enquiries in various provinces indivate that their numbers are very slowly on the decline it is most unlikely that even with the advance of industrialisation the village gham will ghave be entirely superseded Gham crushing plays an important part in rural life so that any improvement which would lead to increase its efficiency must be regarded as of primary importance. Further the crushing of oilseeds by the village ghams is closely linked up with the consumption of oileake by cattle and its utilisation for



A close up view of 10t uy η^h ture in an off mill

manure Any expansion in these directions would undoubtedly benefit the cultivator by improving both his land and his stock

- (2) Number and location of crushing establishments and quantities of linseed estimated to be crushed
- (a) Village phanus—It was indicated in Chapter II that the gharis handle a number of other kinds of oilseeds according to season, local production and other market factors. The crushing of liniseed by ghanis is more common in those parts in which linised oil is used as an edible oil, for example in the Central Provinces and Central ladia States. The quantitative requirements of hisseed for crushing in the village ghanis have already been discussed in Chapter II* and the following table summarises the position —

~		
_	Estimated number of ghanis	Estimated aver age annual re quirements of linseed (tons)
United Provinces	. 1,47,737	15,000
Bihar (and Ortssa)	83,000	13,000
Central Provinces	18,551	16,500
Central India and Rajputana States	20,000	18,000
Punjab	40,000	1,700
Kashmir	3,000	1,500
Assam Bengal Bombay Hyderabad Madras	No crushing by ghanis	
	Total	65,700
	1	1

⁽b) Power driven mills and rotary ghanis—Although industrial establishments employing more than 20 persons have to be registered under the Indian Factories Act, they are not required to render periodical returns showing their consumption of raw material and output

^{*}See page 53 †Cattle Census Report of the United Provinces, 1935

of finished products. No data are therefore available from official records regarding the quantities of the different obseeds crashed by the oil mills or of their respective crushing capacities. The total number of oil mills' in India with special reference to those mills which have been ascertained to be crushing linesed (exclusively or along with other oilseeds) are shown in the map facing page 44 their number and location being as follows:—

Number of power driven oil mills in India

	Total number of oil mills	Number of mills crush ing limseed.
India-		
Assam	15) na
Bengal	41	9
Bihar (and Orissa)	38	26
Bombay	62	6
Central Provinces	64	41
Vadras	28	12
Punjab	61	}
United Provinces	61	2-
Baroda	16	
Bombay States	5	
Central India States	4	1
Cochin	7	1
Hyderabad	13	3
Kashmir	7	7
Kotah	1	1
$\mathbf{M}_{\mathbf{y}\mathbf{sore}}$	12	
Travancore	13	
Total	519	123
Burma	32) il

A number of concerns handling copra only have not been included.

The position in the different areas may be summarised as follows

United Provinces —Out of the 61 mills in the United Provinces
21 were reported to be crushing linseed Statistics collected from
21 of the latter indicate that there are in operation 16 sets of presses
62 expellers and 2 373 rotary ghanis The principal milling centre
in the province is Cawingre.

The quantities of linseed erushed vary from year to year depending on the relative values of different oilseeds and oils and some 19 000 tons were estimated to be crushed in 1934 35. The annual consumption on an average is somewhere between 20 000 and 25 000 tons.

Bihar—There are 38 oil mills in this province most of which are compped primarily for crushing mustard. As far as can be ascertured the number of the rotary ghains is not less than 3000 while tere are 30 expellers. The milling industry is concentrated in the large towns situated along the south bank of the Ganges mainly because of the facilities afforded by cheap river transport. About 15000 tons of linseed were estimated to be crushed by 26 mills in 1934 30 the annual consumption ranging between 12 000 and 20 000 tons.

Central Provinces—In the 64 mills of which records have been obtained in this province there are in operation 14 sets of hydraulic presses 70 expellers and about 100 rotary glains. It was ascentanted that as many as 41 mills were crushing linseed the average annual consumption being estimated at approximately 40 000 tons. The chief centres of crushing are Raipur Bilaspur and Nagpur

Bombay—Although there are as many as 62 oilseed crushing establishments operating at least 14 sets of hydrulic presses and some 230 expellers and 800 rotary ghans in the province linseed is crushed in 8 mills only mostly by expellers the chief centre being Bombay About 9 000 tons are estimated to be crushed annually on an average

Bengal—There are 44 oil mills in this province the majority of which are primarily concerned with the crushing of mustard and rapesced. These mills have 11 sets of presses 25 expellers and rearly 4700 ghānis. Liniseed is handled in 9 mills only of which 2 sitted near Calcutta crush liniseed exclusively. These mills are maily equipped with hydraulie presses and are among the largest in the court About 2-000 tons were estimated to have been crushed utry. About 2-000 tons were estimated to have been crushed utry. About 2-000 tons were stimated to have been ruise of the court of the cour

Other provinces and States—The quantity of linseed crushed in other parts of India is comparatively small. For instance only 1500 tons are crushed in Hyderabad State while the mills at Indore Gwallor, Kotah and other Central India and Rajputana States jointly consume nearly 5 000 tons much of which goes into the edible trade 11371CAR In Kashmir 6 expellers and 2 presses deal with about 3000 toms of linseed per annum. In the Punjab, records have been obtained of 61 linseed per annum. In the Punjab, records have been obtained of 61 linseed is confined only to the rotary ghams in the hangra district and to the extent of about 200 tons only. In Assam, although there are 15 oil mills, these do not crush linseed. The Madras and Sind mills do not appear to handle any linseed whatever. This is also the position in Burner.

As has already been indicated in Chapter II, the total quantities of linseed estimated to have been crushed by bullock driven glans as well as by the power driven mills during the triennium ending March 1937, amounted to nearly 200,000 tons annually

(3) YIELD OF LINSEED OIL AND CAKE

Oil and cake yields necessarily depend upon the oil content of the Inseed, the proportion of impurities present, and the efficiency of the plant employed. In the laboratory, the oil contained in the various samples of linseed collected from different parts of Indas was found to vary between 38 and 48 per cent (on a cleaned seed basis Enquiries from a number of oil mills and ghams showed that the average yield of oil on a commercial scale, from Innseed as received by the mills, ve, including its impurity content, is about 33 per cent from small Innseed and 34 to 36 per cent from bold linseed. The yield obtained by the village ghams is considerably lower varying from 25 to 30 per cent only. Having regard to these variations the average yield of, oil manufactured by all the processes employed in India may be reckoned roughly as one third by weight, of the quantity of inseed crushed the residue after the oil has been extracted representing approximately two thrids.

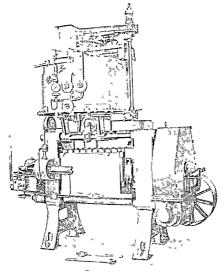
The crushing of linseed involves a certain amount of milling loss. From the fact however that the oil and cake normally total up to the weight of linseed crushed it would appear that this loss is offset by various factors such as gain in weighing when taking deliveres of linseed gain in weight during storage in certain months and by the addition of steam during processing.

(4) Cost of cruseing

The cost of crushing linseed varies considerably in different power than the many and depends on a large number of factors such as the type, capacity and efficiency of the plant used the number of hours worked daily, the total turn over labour expenses cost of stores rents, rates and taxes etc. It would seem that operating costs were recloned by a number of concerns to range between Re 060 to Re 140 per manual on the weight of linseed crushed or from Re 1 to Rs 380 per manual of oil manufactured.

The cost of crushing in the village ghans is most difficult if not impossible to estimate because the telt and his family all work at the ghant and their labour cannot be assessed in terms

AN OIL EXPELLER



This machine is a small self-contained unit used for expressing oil

[By courtesy of Messie Maishall Sons of Co (Ind a), Limited]

of eash with any degree of accuracy Besides, the tell is often paid m kind for crushing linseed brought by others He returns the oil to the owner of the linseed, keeping only the cake as his reward

(5) LINSEED PRODUCTS

The chief products from linseed are linseed oil and linseed cake boiled ' oil after The former is marketed as "raw oil or as treatment by a chemical process to which reference will be made later Other products which are only occasionally manufactured in India are hoseed meal and looseed calle meal which are merely looseed and buseed cake ground down

B -Linseed oil

(1) PRODUCTION

The total production of linseed oil from 200 000 tons of linseed estimated to be crushed in India by the large mills and ghanis would approximately amount to about 67,000 tons or 16 25 million gallons

(2) QUALITY

(a) 'Raw" linseed oil -Before the linseed oil manufactured by presses expellers and rotary quants is sold it is usually filtered or 'tanked'', or both for a period in order to allow the mucilage and foreign matter in suspension to settle down On the other hand the oil [roduced in the village ghants does not receive any further treat ment and is put out for sale practically straight from the ghani Consequently, it is not as clear as the linseed oil turned out by the large mills The colour of linseed oil depends largely on the tempera ture and methods of extraction As a rule the oil produced by expellers is of a paler colour than the oil manufactured by other types of plant Apart however from these small differences in physical characteristics there appear to be no appreciable chemical divergences—at least none have been established in the research work done so far as between the raw linseed oil manufactured by modern machinery and that turned out by the village ghani

The quality of the oil also depends to a certain extent on the condition of linseed itself. It has already been pointed out in Chapter VII that prolonged storage may affect the quality of bused while damp and moisture are also harmful Accordingly, linseed containing a high proportion of damaged grains is apt to neld an oil with a high acid value Fresh linseed oil generally has a turbid appearance and is, as a rule unsuitable for the manufacture of varnishes etc During storage for a considerable period it con times to deposit matter in suspension and some of the large mills which have ample storage accomplidation make it a point not to deliver oil which has been tanled for less than two to three months

For industrial purposes, a clear bright oil with good drying properties is required and the paler coloured oils are generally given

L137ICAR

preference In the edible trade however somewhat different factors predominate For human consumption the oil produced by the village ghanus is often considered superior to the oil turned out by rotary ghanus, expellers and presses as it is considered to possess a sweeter taste and a more pleasant flavour. This is reflected in the price of village ghanu oil which is dearer than mill made lineac oil.

(b) "Boiled" Innseed oil —When exposed to the air, Innseed oil absorbs oxygen and dries to form a firm elastic film. On this property depends its main industrial use all over the world in the manufacture of paints varnishes hinoleum printing inks etc. The drying qualities of the oil yielded by Indian Innseed is generally recognised as being superior to the oil manufactured from Argeitine Innseed.

The drying properties inherent in raw linseed oil are increased by converting it to its "boiled" form. This is achieved by heating the "raw" oil to suitable temperatures with certain chemicals known as "dirers". The term "boiled" oil is, however a misnomer since in practice the oil is not heated to such a degree that it begins to boil. The "dirers" generally used are salts of lead manganese and colait eg, manganese knoleate lead neetate, etc. These are used in small quantities only and are believed to act as catalysts helping the oil to absorb oxygen.

Boiled oils are marketed in a number of qualities for use under different conditions. The different qualities of oil vary as to colour time of drying and consistency and are known to the local trade by such designations as Special Pale Boiled Pale Boiled Double Boiled to The paler oils are used for white and lighter coloured pants and the darker oils for the deeper shades or where very quick drying is desired. Again the term "double boiled" is a misnomer and does not signify as the word "double" would seem to indicate, that the oil had been boiled twice. In the trade the expression is generally applied to a comparatively dark and quick drying oil.

No statistics are available to show the production of boiled of in India but enquiries from a large number of sources reveal that not more than about 15 per cent of the linesed oil manufactured in India is sold as boiled oil. The total production of boiled oil by the mills in India may therefore be placed somewhere in the neighbourhood of 10 000 tons or roughly 24 million gallons. The manufacture of boiled oil is confined to a few mills only the clief centres of production of this quality being Calcutta Bombay and Cawspore

In addition to the boiled oil actually prepared for sale by the mills paint and varnish manufacturers often buy their require ments of linseed oil in the raw state and prepare the boiled oil themselves for use in their manufactures

(c) "Reduced" oils—These oils are mixtures of inseed oil and refined mineral oils turpentine etc and are often considerably cheaper than the genume article "Reduced" oils are sold in large quantities and find a ready sale in many markets. At Madras for example "reduced" oils were found to be in greater demand than

genume inseed oils, as will appear from the following figures showing the relative proportion of the various qualities sold by a large distributor

" Boiled " linseed oil

Genuine-

In 5 gallon drums 6 per cent
In 1 gallon drums 1 per cent

" Reduced "-

In 5 gallon drums 29 per cent
In 1 gallon drums 64 per cent

Besides "reduced" oils, there are to be found on the markets extain other oils termed "paint oils" which contain no linseed oil whatever and which are merely mixtures of mineral oils rosin etc. These oils are used as substitutes for boiled linseed oil mainly for unterior paint work and although poor in quality in that then film has no lasting qualities they command a good sale owing to their decapites. In some centres as for example Delhi sales of paint oils "are equal to if not greater than those of genume linseed oil

(3) BRANDS

Unusced oil is generally marketed by the manufacturers under principal prands and trade murks. Different brands and marks are used by certain manufacturers to distinguish between the genuine and "reduced" oils. The total number of brands of raw and boiled oils on the Indian market appears to be not far short of 100. A few of the more important brands met with during this principal properties. The designs used for stencil lang the brand on the drums and sometimes the colour of the drums and sometimes the colour of the drums and sometimes the various brands and qualities.

The well known brands convey an assurance of quality but in the retail trade when the oil is mainly served out to customers loose in bottles or by gallon measures or by weight there is no proof that the oil being yold is of the brand or quality marked on the drum from sheln it is drawn. There is undoubtedly much scope for milpractices under these conditions.

14) COMPARISON BETWEEN THE QUALITY OF BOILED OILS MANUFACTURED IN INDIA AND IMPORTED OILS

It has been found that imported linseed oil which is almost wholly the boiled quality, particularly of one well known brand made in the United Kingdom was always fetching a higher price than similar Upes of linseed oil manufactured in India Enquiries were made from various consumers which elicited the information that the higher price paid for the oil was based on the belief that it gave a more lasting and glossy film. In order to ascertain the precise wildly lasting and glossy film In order to ascertain the precise qualify factors which appeared to be responsible for the higher price paid for the imported product a number of samples of several brands of Indian manufactured oils and imported oils were physically

and chemically analysed, the results of which will be found in Appendix XLII It will be seen from these results and is also borne out by enquiries that some of the Indian boiled oils are of a high quality and in no way inferior to any of the imported oils which not only failed to establish any point of superiority but failed also to come up to the specification laid down by the Indian Stores Department owing to an unusually high acid value. Consumers of such oil therefore pay more for an article which does not appear to be materially superior to the best Indian oils sold at som what cheaper rate. Goodwill and the fact that such oils had been established in the Indian market a long time before equally good oils were made in India along with the conservatism of the trade are probably the main factors responsible for the relatively high prices paid for the imported article.

Although imports of boiled oil into India from abroad have steadily dwindled the fact that imported oils are still found in the markets all over the country shows the popularity of these oils and possibly indicates that the Indian manufacturer is not sufficiently alive to the real needs of the consumer. Another factor which operates in favour of the imported oils is that boiled oils made by manufacturers in India often lack consistency and uniformity in quality. With the exception of a few well I nown brands the same brand of oil from the same manufacturer is not always found to be of identical quality.

(5) CONTAINERS

Lanseed oil is put up in various kinds of containers for distribution. The more important of these are illustrated in the plates facinpages 215 and 219 and are described hereunder. It may be noted that the quantities of linseed oil transported in bulk in tank wagons forms an insignificant proportion of the total volume of traffic-

- (a) 40|45 gallon heavy steel drums (with bands)—This type of bands and has a fare of 80|120 lb The bands and considerably to the strength of this type of container and owing to its serviceableness over long periods these drums are largely used in the local trade at miling centres. They are however not commonly used for the transportation of oil by railway owing to their heavy tare. The cost of these drums varies from Rs 5 to Rs 8 each second hand
- (b) 40|45 gallon light steel drums (unthout bands)—These con terms have the same capacity as the drums described above but being made of thunker metal sheets they are much lighter having a tare of only 45 to 60 lb They have two corrugations circumferentially instead of separate bands. Such drums are largely imported into India carrying immeral oils. When empired and cleaned they are much used for transporting vegetable oils by rail. Lately however the manufacture of these light welded steel drums has been taken up in India. The price for secondhand drums of this type is usually in the neighbourhood of 83 to 183 4 each.

- (e) 5 gallon drums —These are made both from black iron and galuanised nor sheets in a number of qualities the more expensive types being electrically welded. They are often fitted with destructible agrades to prevent the contents being tampered with The cost of new drums varies from Re 0.120 to Re 1.90 each and the tare from 5 to 8 lb Imports of linseed oil from abroad are packed in this type of drum.
- (d) 4 gallon tins—This is the ubiquitous kerosene oil tin found all over the country and may appropriately be called the universal container Both new and second hand tins are very popular in the vegetable oil trade. The tare is about 2½ lb only and the capacity about 4 gallons or 18 seers. Their cost may be anything between Re 040 to Re 080 each, second hand.
- (e) 1 gallon drums—These are very similar to the 5 gallon drums already described and are used to a limited extent only. The lare of each drum is about 1 lb and the cost Re 0 6 0 to Re 0 9 0
- the the different types of containers—It will be clear the different types of containers vary greatly in capacity, and cost and are consequently adaptable to the requirements of different classes of consumers. While the 40|45 gallon drums are cheapest where large consignments are involved they must obviously be unsuitable for smaller quantities or where ease of handling is of primary import ance. The 5 gallon drum is handy and strong but is comparatively easily. On the other hand the 4 gallon kerosene oil tins are much cheaper and can be stacked compactly but being made of thin tin sheets are more hable to damage.

Another factor of great importance in regard to containers which is closely linked up with the adulteration of vegetable oils is the degree of protection afforded against tampering with the contents The 40|45 gallon drum has an arrangement whereby a wire can be passed through the bung and attached to the body of the drum and sealed Thus the contents cannot be got at unless the seal is first broken. However, in most of the second hand drums used, it was found that the loop attached to the drum had been broken of and even when found intact, it was seldom availed of Destructible capsules are generally fitted to the 5 and 1 gallon drums with the name of the manufacturer embossed thereon This provides the con sumer with an adequate guarantee in respect of the quality of the contents but the comparatively high cost of this type of container militates against its wider use for large quantities The 4 gallon berosene oil tin is closed merely by soldering on a disc so that taiaper ing is possible without fear of detection

Only a small proportion of the linseed oil consumed in India generally reaches the consumer in sealed containers and it appears that the unportaine of this matter is not realised to the full by a large section of the trade as well as by the buying public

The general appearance and "get up" of the average container leaves much to be desired and the maxim that "a good product

requires a good container 'is not fully appreciated by a number of manufacturers. The fact that considerable quantities of boiled of are served across the counter to small consumers mainly for painting purposes in nondescript bottles—frequently brought by the pur chasers themselves—or by weight and that the user is almost invariably served with poor grade or reduced "oils when buying from bulk, indicate that there would be a keen potential demand for a small cheap container in which linseed oil of guaranteed quality could be marketed without danger of being tampered with

(6) DEMAND

The demand for lussed oil in India is mainly internal. Apart from rather more than 400 tons or 100 000 gallons annually slupped to Biurna exports to foreign destinations are very small averaging less than 300 tons or about 73 000 gallons. The internal demand falls under two heads (a) for industrial uses for which both law aid boiled oils are utilised, and (b) for human consumption for whose raw oil only is used either pure or in admixture with other comparatively high pureed eithle dist such as mustard.

The demand for linseed oil for industrial purposes exists in every part of India whereas the edible trade is largely confined to certain areas only

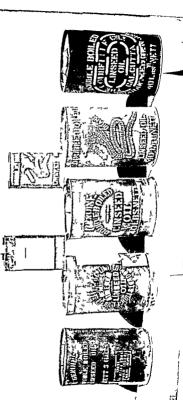
(a) For industrial uses -As an industrial oil linseed oil is con sumed in India mainly in the preparation of paints and varnishes and to a comparatively small extent only in the preparation of printing inks oilcloth and water proof fabrics Such requirements are met by the Indian production of boiled oil supplemented by small imports fr m abroad mainly from the United Kingdom (Chapter I page 30) The main consumers of linseed oil are therefore paint and varnish manufacturers the railways the Public Works Department the Military Authorities private engineering worl's including contractors and paint decoraters. Purchases made for the State Railways and the Public Worl's Department and other official consumers are made through the Indian Stores Department while the supplies required by the military authorities are bought through the Director of Con tracts at Army Headquarters The detailed specifications which are laid down for such purchases differ very little from British standard specifications (See Appendix XLIV) These or very similar specifications. specifications (See Appendix XLIV) fications are also adopted by other large consumers such as company owned railways paint and varnish manufacturers steam ship companies etc

The specifications for linseed oil describe the colour and general apperance of the oil and lay down the maximum tolerance as regards and value the limits for sapountication value and specife g vity together with minimum notine value in the case of raw oil and the maximum drying time in the case of boiled oil

Purchases of raw and boiled linseed oil effected by the Indian. Stores Department during the past 5 years and the relationship of

40 45 gailon drum with bands

40 45 gallon drum without bands



raw and boiled oils will be apparent from the following table —

Purchases of Linseed Oil by the Indian Stores Department

(In callens*)

(In ganous)					
Year	Raw Linseed Oil				
1932-33	40,169	136,279	176 448		
1933-34	31,862	122,948	154,810		
1931-35	38,755	101 959	140 714		
1930-36	74 655	131 001	205 656		
1936-37	44 518	97 613	142,131		

The consumption of linseed oil for industrial purposes tends to rise in the winter when painting activities are brisk

(b) For edible use—The demand for human consumption varie greatly in different parts of India Specifications which are a common feature in the industrial trade, are conspicuous by their absence in the edible oil trade

As has been indicated in some detail in Chapter II, mustard oil is the most commonly used edible oil in the United Proviness Bihar and Bengal and the fact that linseed and groundout oils had both be mixed with mustard oil to a certain extent without appreciably changing the physical characteristics of the latter creates a demand for the two cheaper oils for the purpose of adulteration with mustard oil. The choice between groundout and linseed oils obviously depends on their relative prices the demand for tinused oil being greatest when the difference between the price of goundout and linseed oil favours the latter and when both satulerants are sufficiently cheaper than mustard oil

Lusseed oil is the most widely used edible oil in the Central Provinces, and in Central India except in some of the northern districts adjacent to the United Provinces gham oil is considered superior and normally sells at a premium of about Re 1 to Re 180 Per maind over mill manufactured oil ie, nearly 10 per cent at former trains.

In other provinces and States linseed oil, as such is not used for buman consumption

The demand is lowest in summer and highest in the winter months stimulated by the increased consumption which takes place as a result

[&]quot;The Indian Stores Department contracts reakon a gallon of raw oil to be \$1 to and a gallon of botted oil \$4 to

of a number of important festivals such as Durga Puja* and Dinahi which fall during this period It should also be noted that there is a general increase in the consumption of all household necessities and even luxuries, on account of these festivals

(7) Prices

(a) Relation of the prices of linseed oil, with those of linseed and linseed cake—Linseed oil being the main product from the crushing of linseed one would expect a close relationship between their values. A comparison of the values of linseed and linseed oil shows that generally the prices of linseed oil at any given time depend but little on the current prices of linseed, so that the difference between the price of linseed and linseed oil varies considerably. The price obtainable for cake influences the price of oil but oily to a small extent.

The average monthly prices paid by a mill at Calcutta for its purchases of inseed and obtained for its sales of inseed oil and inseed cake during three years are illustrated in the diagram facing this page. It will be observed that the difference between the price of lusseed oil and linseed was as much as Rs 6 11 0 per maind in August 1934, and as little as Rs 3 5 0 per maind in June 1933. The difference between the average annual prices of the oil and linseed was Rs 5 8 11 per maind in 1933. Rs 4 3 6 in 1934 and Rs 4 11 per maind in 1935. The relation between the prices paid for linseed and those obtained for linseed oil and linseed eake by this mill during the three vears will be clearly seen from the table below.

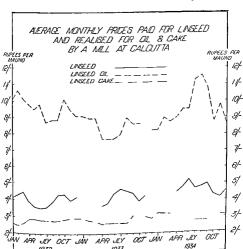
Relation between the prices paid for Innseed and obtained for Innseed Oil and Innseed Cake by a mill at Calcutta.

	Lanseed	Linseed Linseed Oil (Raw)			cake c Press)
-	Average annual price	Average annual price	Per cent of linsced price	Average annual price	Per cent of linseed price.
	Rs A P	Rs A P		Rs A P	
1932	4 0 8	9 9 7	237	2 12 4	68
1933	4 3 7	8 7 1	200	2 12 3	65
1934	4 10 7	9 8 8	204	2 15 6	63
Average	4 4 11	9 3 1	214	2 13 4	65

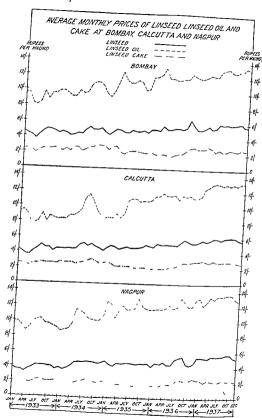
As 3 maunds of linseed yield approximately 1 maund of linseed oil and 2 mainds of linseed cake the difference between the total

^{*}Durga Puja-worship of the goddess Durga-an important Hindu festival

[†]Diwals-Literally, row of lights A Hindu festival when illuminations take place on a large scale It is usual for houses to be repainted before this festival takes place



Facing page 221.]



price of 1 maund oil and 2 maunds cake over the price of 3 maunds haseed at any given time represents the millers margin which includes his cost as well as profits This will appear to vary widely at the current values of the three products and may actually show a loss on many occasions For example, in August 1934, the price of 1 maund oil and 2 maunds cake exceeded the cost of 3 maunds linseed by Rs 270 but in June 1933 the price of 1 maund oil and 2 maunds take was actually less by Re 0 6 0 than the cost of 3 maunds linsed at current values It is evident, therefore, that the manufacturers do not base the prices of their products only on the current values of linseed They buy linseed at different rates from time to time and in computing the cost of their oil and cake take their average price into account The market conditions of course exert a big influence in the determination of selling prices In the example taken the mill obtained at average annual rates for 1 maund of oil together with 2 maunds cake an amount which exceeded the price paid for 3 maunds of linseed by Rs 3 0 3 in 1933 Re 1 14 10 in 1934 and Re 1 7 11 in 1955, which is equal on an average to Re 0 10-4 per maund of linseed

The average monthly wholesale prices of linseed linseed oil and linseed cake at Bombay, Calcutta and Nagpur are given in Appendices XIV to XLVII and illustrated in the diagram facing this page

It will be observed that the relation between the prices of linseed, linseed oil and linseed cake varies from month to month and in different markets

At Bombay the demand for linseed oil is mainly for industrial use. The demand for linseed cake and linseed is primarily for export. The prices of linseed and linseed cake follow generally the same trend but the price of oil often follows a different course for instance in February 1935 the price of oil had a sharp rise foundwithstanding a slight fall in linseed prices. The annual average price of oil was more than double and the price of cake about half the price of linseed the actual prices and their relationship during the 5 years 1933—37 being as under—

Relation between Linseed, Linseed Oil and Linseed Cake prices at

	Linseed	Inseed Linseed Oil			d cake
	Average annual price (per maund)	Average annual price (per maund)	Per cent of linseed price	Average annual price (per maund)	Per cent of linseed price
1933 1934 1935 1936 1937	Rq A P 4 7 6 4 10 8 4 13 8 5 6 2 5 12 6	Rs. A P 9 3 9 9 15 4 11 3 10 11 15 1 12 12 9	206 213 231 221 221	Rs A P 2 4 11 2 9 0 2 2 3 2 4 9 2 2 9	51 55 44 42 38
Average	5 0 6	11 0 7	219	2 4 9	46

At Calcutta, the demand for oil is not only for industrial uses but there is frequently a greater demand for mixing and adulteration of other edible oils. The prices of oil therefore depend largely on the prices of other oils. The demand for cake is purely for exposit and thit for linseed both internal and for export. The price at which millers soil their oil is somewhat lower at Bombay, whereas that obtained for cake is higher as will be seen from the table below.

Relation between Linseed, Linseed Oil and Linseed Cake prices at Calcutta

	Linseed	inseed Linseed oil			ed cake
Year	Average annual price (per maund)	Average annual price (per maund)	Per cent of linseed price	Average annual price (per maund)	Per cent of linseed price
1933 1934 1935 1936 1937	Rs 4 P 4 4 2 4 10 5 4 12 2 5 5 10 5 14 9	Ps & 1 8 7 4 9 6 0 10 2 10 11 7 4 13 0 8	199 202 214 214 214 220	Rs A P 2 8 2 2 11 10 2 3 4 2 8 2 2 15 4	59 59 46 47 50
Average	4 15 10	10 8 0	210	2 9 4	52

At Nagpur, the demand for oil is mainly for edible use, for inseed and linised cake there is an export as well as an internal demand. A closer relatiouship is observed between the price of linised and oil than at Bombay and the oil fetches a relativishingler value as compared with Bombay and Calcuta. The relations between the prices of the three products at Nagpur is given in the following table.—

Relation between Linseed Linseed Oil and Linseed Cake prices at

	l ins ed	Linset	d oil	Linsee	d cake
Year	Average annual price (pr maund)	Average annual price (per maund)	For cent of seed price	Average annual price (pet maund)	Per cent of seed price
1933 1934 1935 1936 1937	Rs A P 3 13 0 4 6 4 4 8 5 4 13 7 5 1 7	Rs A P 9 9 11 10 2 9 11 14 5 13 0 0 12 12 0	252 231 262 268 250	Rs A P 2 1 7 2 2 3 1 12 4 2 10 11 2 3 10	55 48 39 55 47
Average	4 8 7	11 7 10	253	2 3 0	49

Thus the prices of linseed oil in these three markets averaged in different years from 199 to 268 per cent and the price of eal c fum 38 to 59 per cent of the price of linseed and it may be inferred that the price of linseed oil in different markets is considerably material by local conditions other than the price of linseed.

- (b) Seasonal tariations—The seasonal variations in the prices of linesed oil are not similar to those in linesed prices as will be seen food diagram facing page 224 which shows the percentage of monthly devations from the annual mean at Bombay Calcutta and Nagpur The percentage deviations in linesed and linesed cake prices are also illustrated in the same diagram for comparison. The lowest points at Bombay Calcutta and Nagpur are reached in April October and February respectively which do not coincide except at Bombay with the harvest decline in linesed prices. The prices appear it their highest level in Jiune July and May at Bombay Calcutta and Nagpur respectively. This again is different from linesed which peak is reached in August or September. The lack of uniforn its in the seasonal variation in different markets lends further support to the inference drawn in the previous section that oil prices are fullenced by conditions which are not related to the price of linesed.
- (c) Price tariations in different markets—The wholesale prices of raw Inseed oil in 7 marl ets in different provinces of India nie illustrated on diagnam facing page 220. At first sight it would appear that the prices in different markets are all at sixes and sevens but a closer examination of the graph indicates that although there is no close relationship between the prices in various markets are closer selationship between the prices in various markets in close relationship between the prices at Cawinpore and Patina show sympathetic movement from January to March and from Jine to August those at Nagpur and Wardha from January to August and the selation of the prices at Calculta and Cawinpore from February to April and from September to Naisember.
- (d) Price variations for different qualities—The two chief qualities in which linseed oil is marketed are raw hinseed oil and builed linseed oil. The manufacturers reckon the cost of boiling from 9 pies to Re 0 ° 0 per gallon and sell boiled oils from Re 0 1 0 to Re 0 2 0 per gallon over the price of their raw oil.

Raw oil is generally not put on the markets in a number of qualities. Nevertheless the oils from different mills are often sold it different sees in the same market. On the other hand boiled is put out by various manufacturers in a number of qualities usually distinguished by trade brands. These differ very consider the presence of the brand are reduced oils.

The monthly average prices of a number of brands of linseed both boiled and raw genuine and reduced —at Madras are

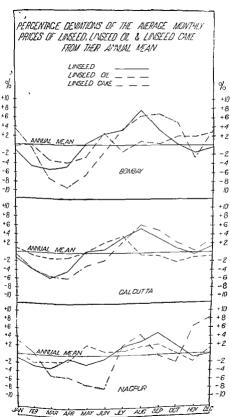
given in Appendix XLVIII, and the annual averages are summarised in the table below -

Annual average prices of various brands of Linseed Oil at Madras (Per 5 gallon drum)

	1933	1934	1935
Boiled oil—	Rs A P	Rsar	Rs A P
Brand A (imported)	13 3 10	13 10 6	13 5 6
" B (made in Calcutta)	11 6 4	11 4 0	11 5 8
" C (made in Calcutta)	11 6 4	11 4 0	11 5 8
" D (made in Calcutta)	7 14 10	7 14 3	7 10 6
" E (made in Calcutta)	7 11 6	7 11 1	7 14 0
" F (made in Bombay)	10 4 8	10 6 2	10 3 6
" G (made in Bombay)	680	6 4 0	7 0 0
, H (made in Calcutta) Re	800	800	7 13 4
Raw oil— Brand B (made in Calcutta)	10 14 4	10 12 0	10 13 8

It will be observed that in 1933 the dearest and cheapest brands averaged Rs 13 3 10 and Rs 6 8 0 respectively per 5 gallon drum so that the cheapest brand was about 51 per cent lower in price than the dearest brand In 1934 the prices of various brands averaged between Rs 13 10 6 and Rs 6-4 0 per 5 gallon drum showing a 1150 of Re 0 6-8 in the highest priced brand and a fall of Re 0-4 0 per 5 gallon drum in the cheapest brand The cheapest brand was about 54 per cent less in price than the one which fetched the highest price In 1935 the extreme limit of the averages for various brands were Rs 1356 and Rs 7 per 5 gallon drum The dearest brand lost by Re 050 per drum while the cheapest gained by Re 0120 as compared with 1934 making the cheapest oil only 47 per cent lower than the dearest brand The difference between the prices of various brands are governed not by the values of linseed oil only but also of mineral oils because as has been mentioned some of the brands-generally the cheapest-are not genuine linseed oil but mix tures of linseed oil and mineral oils

(e) Margin between wholesale and retail prices—The wholesale and retail prices of Inseed oil at Delh and Amraot are green in Appenduces XLIX and L It will be seen that while retail prices are always higher than the wholesale the margin between the two prices fluctuates considerably from year to year and from market



18

to market At Delhi, which is a consuming market only, the average amual margin varied between Rs 1111 per maund in 1933 and Rs 1134 per maund in 1936 as seen from the table below —

Margin between retail and wholesale prices of Raw Linseed Oil at Delhi

- \	1933	193	34	1	193	35		19	936		19	37		Αv	gare	e,
		Rs	-	+	Rs.	۸.	P	Rs	Δ	P	Rs	A		Rs		
Retail	Rs A P	12		8	13			13	1	7	14	13	5	13	3	٤
Wholesale	10 13 5	10	14	4	12	6	4	12	4	3	13	0	2	11	14	
Margin	1 11	1	1 6	. 4	-	1 9	, 1		12	4		1 13	3	,	. 5	,
Percentage o wholesale price	f 10 S	- 1		2 8	- 1		2 6	1		68	1		4 0		11	_

At Amraoti which is both a producing centre and a consumit, maket the margin was much lower, being between 46 and 81 per

Margin between retail and wholesale prices of Raw Linseed Oil at cent only of the wholesale price

(I	Amraoti er maund	1934	1935	Average
	1933			
	Rs A P	Rs A P	Rs A P	Rs A P
	10 14 5	11 12 1	13 0 1	11 14 2
Retail	1		12 6 11	11 3 0
Wholesale	10 1 3	11 6 10	12 0 2	
•		-		
Margin	0 13 5	0 11	0 9 5	0 11 2
	8 1	6 3	4 6	6 3
Percentage of wholesale price				1

The margin between wholesale and retail prices as obtained by mills is much lower. The average monthly wholesale and retail prices obtained by a mill in United Provinces show that the margin varied between Re 0 3 8 and Re 0 1 1 per maund, as given in the table below.—

Average monthly wholesale and retail prices of Lanseed Oil, realised by a mill in the United Provinces

(Per maund)

	Wholesale	Retail	Margin.
1935	Reap	RSAP	Rsar
January	12 0 9	12 1 10	0 1 1
February	11 2 0	11 5 5	0 3 5
March	10 0 B	10 4 2	038
April	10 11 11	10 14 3	0 2 4
May	11 10 8	11 13 3	0 2 7
June	11 9 9	11 11 9	0 2 0
July	11 6 5	11 8 10	0 2 5
August	11 12 0	11 14 0	0 2 0
September	11 7 4	11 9 8	0 2 4
October	12 2 4	12 4 5	0 2 1
November	12 2 3	12 5 0	0 2 9
December	11 14 6	12 0 6	0 2 0
Average	11 8 0	11 10 5	0 2 5

The margin between the average annual wholesale and retail price amounted to Re 025 per maund or a little over 1 per cent of the wholesale price

On the other hand there is a considerable difference between wholesale and retail prices in the case of boiled oil particularly when sold in units of 5 gallon drums and when retailed in small quantites by weight or measure. The rates for two brands of oil taken at Delho on one day for full drums and for loose sales, by weight as well as measure are shown below and will indicate the price variations

	Petu dı	nin.	
Brand A	Rs	Δ	P
When sold per drum (45 lb net)	1"	8	0
When sold per seer @ Re 1	29	8	0
When sold per Imperial gallon (9 lb) @ Rs 4	20	0	0
Brand B			
When sold per drum (40 lb net)	13	8	0
When sold per seer @ Re /12/	17	8	0
When sold per O.M gallon (8 lb) @ Rs 3	15	0	0

(8) DISTRIBUTION

The oil turned out by the village ghants is mainly consumed locally and is distributed through the village merchant or by the tell himself who sells it at the nearest marret or in the village for cash or in exchange for linseed or other produce

- On the other hand the oil manufactured by the mills and ordary phans finds its way into consumption—industrial and edible—through a more complex and widespread distributive system. The output of the United Provinces mills for example is not only marketed within the province but a large proportion is consigned to Bengal the Punjab Delin Rajputana Central India and Bombay The oil produced in Bihar largely moves to the adjacent provinces of Bengal and Assam. Some of the Inseed oil manufactured in the Bombay Presidency also finds its way into Central India and the State of Hyd-rabad. Boiled oils of well known brands manufactured chiefly by the mills at Calcutta and Bombay are to be found all over the country.
- (a) Wholesale trade—Manufacturers dispose of their oils in one of the following ways
 - (1) by sales to wholesale oil merchants either direct or through brokers
 - (11) by direct sales to large consumers such as railways paint and varnish makers engineering concerns and paint merchants
 - (111) by sales through commission agents
 - (10) through their own selling organisations
- (t) Sales to wholesale merchants—The bulk of such sales guarantee Listian

brokers or banians* through whom all sales are made These guarantee brokers are responsible for proper execution of contrast rud for the full realisation of the price of the goods sold in retuin for which a commission is paid on sales. There does not appear the any degree of uniformity in the scale of commission charges pain to brokers, the rates ranging from Re 0.2-0 per mained where the broker assumes intill or no responsibility for the due fulfiliment of sale countraits to Re 0.12-0 per mained where the risks carried by the broker are great or the services performed particularly comprehensive

(4) Sales to large consumers direct — Vost of the large mills sell a fair proportion of their oil direct to important consumers. Tenders are competed for and if accepted contracts are entered into with the Indian Stores Department or directly with the railways and other public institutions paint manifacturers paint merchants etc. Such contracts are generally for long term supplies extending over 6 months or a year the mills undertaking to liquidate the contract by periodical consignments as required by consumers. Boiled oil forms the great like of sales made in this way.

(iii) Sales through commission agents.—Some of the mills despatch their product largel; ray linsed oil to arrhatigas at different stations for commission sale. The oil is sold by the commission agents in precisely the same way as his already been described in the chapter dealing with the assembling and distribution of inseed All expenses meurred by the commission agent are debited to the

(w) Sales through their oun selling organisations—A few mills ossess their own selling organisations in the shape of sole agents sale depots or canvassers. The former are appointed to definite areas and distribute their principals manufactures through sub agents or other dealers. Wills sale depots usually sell the oil direct to consimers on a cash basis but generally in quantities not less than 1 gallons at a time. Canvassers visit customers periodically in our of secure orders and to establish and maintain contact with the trade

Whatever may be the agency employed for selling their obmanufacturers base their selling prices on loose ex mill basis. Accord
ingly when linseed oil is supplied with containers the cost of the latter
is added and when required to be delivered at the burvers premises fire
ord of transport is also added. Orders are also executed in refunrible drums if so desired in which case the buver is responsible for
the expenses incurred in sending the drum back to the mill. Order is as a rule made for the use of the drum and a deposi for
its value may or may not be taken depending on the business relations
everting between the parties concerned.

Most of the sales are made on credit terms the period for which credit is allowed varying from 15 to 90 days in different centres. Interest usually at 6 to 9 per cent per annum is charged after the free period.

^{*}I term much used in Benoul synonymous with broker. Often the banan is more than a broker combining the functions of a Shroff or financier

The cost of distribution naturally varies according to the distribute between oughn and destination and the charges at the two points e.g. terminal tax transport to and from station, etc. The following is an actual statement of cost and expenses incurred on a consignment of oil railed from Cawnpore to Delti —

	Rs	A	P
35 drums of boded inseed oil weighing 21 maunds 30 eeers net @ Rs 8 10-0 per maund loose ex mill Cawnpore	187	9	6
Cost of drums @ Re 1 each	35	0	0
Cartage and unloading at Cawupore railway station (a ${\bf G}$ pies per drum	1	1	6
Octron at Cawnpore @ Re 0 2 0 per maund	2	12	0
Incidental expenses at the station	0	4	0
Railway freight from Cawnpore to Delhi	13	10	0
Registered post charges on the railway receipt	0	5	3
G t C TD.No.			
Cost f o r Delhi	240	w	3
Station dalah (brokerage) at Delhi	0	4	0
Municipal terminal tax @ Re 0-1 0 per drum	2	3	0
Loading and cartage from static n @ Re 0 1 0 per drum	2	3	0
Cost delivered at buyer s gode wn Delhi	245	4	3

Thus the expenses from the mill at Cawnpore to buyer's godown at Delhi amounted to Rs 57109 or nearly 31 per cent of the prime cost of the oil

(b) Retail trade—Raw linseed oil is retailed mainly by the tell or retailer of vegetable oils who usually sells a number of vegetable oils both edible and non edible under the same roof. The hapbazard manner of keeping stocks adopted by retailers and the cleanlness of the premises occupied are far from satisfactory. The different oils are kept in tins of all sorts and conditions—open or co-sed—as well as in earthenware jars. The oils are weighed or measured into the buyer's own container the same laddle being indiscriminately used for serving different oils. Rates are usually quoted in seers per rupee or annas per seer.

Raw linseed oil for industrial uses is also retailed to a sr all extent by paint shops and hardware stores who sell the oil either by weight or by measure the seer and the ordinary quart bottle being the most commonly used unit

In the case of boiled oils however the retail trade is almost entirely carried on by paint shops and hardware dealers, who also cater for the wholesale trade on the same premises. These oils are gold both by weight and measure the common units of sale by measure

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being the 5 gallon drum, the gallon drum and the quart bottle. For sales in full drums the prices are inclusive of the containers wheteas for sales of loose oil or for small quantities only, the container is almost always provided by the buyer himself. Oil imported from the United Kingdom is invariably sold in sealed 5 gallon drums.

There are considerable variations not only in the measures used in the linseed oil trade but in the weight of oil taken as the equivalent of a gallon Graduated standard measures are unknown and anything from 8 to 9 lb may be regarded as equal to a gallon The customary measure in the retail trade in boiled oils is the "old measure ' (O M) gallon which is equivalent to about 8 lb of hisseed At times however 9 lb may be given per galton oil by weight Drums containing 40 lb, 45 lb or over 46 lb oil are all indiscrim nately termed 5 gallon drums and it was found by test that drums purporting to be 5 gallon drums, were variously filled by the manufacturers with anything from 40 to 463 lb net of oil Raw linseed oil is usually sold on the basis of 9 lb to a gallon though upto 94 lb may be given in different cases. The Imperial gallon it may be noted, weighs about 91 lb of raw linseed oil and about 91 lb of boiled linseed oil

(9) ADULTERATION

In India, there is a demand for a cheap article in most commodities and vegetable oils are no exception to the general rule T is coupled with the absence of enactments penalising the mixing of different oils or the laxity of enforcement where such measures evist, permits adulteration to be carried on with impounts.

Mustard oil is held in high esteem as an edible oil in Northerm India and is comparatively dear The natural outcome of the demand for cheapness is that other lesser priced segetable oils tend to be mixed with the dearer in such proportions as grae the adulteritor the greatest profit consistent with safety from detection for fortunately only the physical characteristics of the oil "graetest profit consistent with safety from detection to not state of the physical characteristics of the oil "graetest profit is not possible to determine without a chemical examination in the laboratory whether any oil is adulterated unless adulteration has been carried to a point at which the physical characteristics of the original oil have been appreciably changed. Even this can to a large extent be overcome in the case of an oil possessing great punciency such as mustard oil. It is well known that unscrupulous dealers add synthetic mustard oil essence in the form of allyl isothneyanate in order to impart the pungency associated with mustard oil.

The use of lineed and groundnut oils as alternative for adulteration with mustard oil has already been referred to elsewhere It will suffice therefore to state here that he use of linseed oil for adulteration of mustard oil appears to be so prevalent that several mulls handling large quantities of the latter, market their mustard oils in a number of qualities of which the first only is the genuine oil the others henry mytures of mustard and linseed oil in varing proportions. These lower grades are sometime given certain brands

or marks or may be designated by numbers such as No 1½ or No 1½ but are not called mustard oil by the manufacturers Nevertheless these oils are passed of in the trade as mustard oil

A number of commercial samples of mustard oil were collected during this survey and were analysed at the Harcourt Butler Technological Institute, Cawapore Of the 33 samples analysed 11 were found to be adulterated principally with Inseed oil, the extent of adulteration varying from 33 to 100 per cent. This would indicate that at least one third of the so called mustard oil sold in India is adulterated. However the proportion is undoubtedly far genter in view of the fact that a fair number of the samples analysed came from the manufacturers before the oils had even entered the whole sale and retail trade where they lend themselves to further adulters ton. It may be reasonable therefore to assume that more than half of the mustard oil as sold in the markets of India is not the genuine product

It may be interesting to observe that a sample which had been given out with a guarantee of purity a reward of Rs 1,000 being offered to niv body proving it to be otherwise, was found to be heavily adulterated with Imseed oil

While inseed oil finds an important outlet as an adulterant in the rable oils it is itself—both in the raw and boiled forms—liable to adulteration with white immeral oil rosin oil et to meet the dimind in the paint and variish trade for a cheap oil. These adulterated oils are sometimes passed off as pure but more commoils sold as "reduced" oils in which case they are put on the market under trade marks or brands or under fancy names as "Superfine", "Fine" etc. The nature and extent of adulteration is not stated on the container* and in the retail trade the average buyer does not know whether he is being served with genuine or "reduced" oil

Out of 34 commercial samples of raw linseed oil collected during the course of this survey and examined at the Harcourt Putler Technological Institute Cawapore 10 were found to be adulterated, the main adulterints detected being rosin oil safflower oil and mineral oil of the 10 samples found to be adulterated 6 purported to be genuine. Out of 32 samples of boiled oil analysed 12 were found to be adulterated the chief adulterants being mineral oils rosin and rosin oils. The extent of adulteration varied from 15 to 67 per cent.

Although legislation designed to prevent adulteration of food stuffs exists in most of the provinces in India and a number of numerical time that the position with reference to regetable oils appears to be far from satisfactory and the adulteration of vegetable oils is practised with impunity almost everywhere. The state of affairs at Calcutta regarding the adulteration of mustard oil may be cited as an instance. The Calcutta

[&]quot;Oll imported into Burma containing more than 5 per cent impurities has to cirry a suitable distinguishing mark such as "adulterated" or "reduced" under the Marchandias Marks Regulations If the percentage of impurities exceeds 50 per cent the actual percentage of adulteration must be marked on

Municipal Act 1923 makes it an offence to mix with foodstuff any substance which would reduce or lower or injuriously affect its quality or strength or diminish its food value or nutritive properties and prohibits the sale or manufacture of any food which is adulterated The Act also provides that mustard oil shall be derived ex lusively from mustard seed that every manufactory of mustard oil or other edible oil in Calcutta shall be registered and that no substance intended to be used for the adulteration of mustard oil shall be stored in any establishment manufacturing mustard oil Notwithstanding these rules it is a matter of common I nowledge that large quantities of linseed oil find their way into mustard oil at Calcutta when pinces are suitable. Spasmodic attempts to check this adulteration appear to have been made from time to time. Samples are collected and analysed and prosecutions launched by the authorities concerned but determined and persistent action to stop this malpractice is conspicuous by its absence

At Arangath a town of some importance in the United Provinces the municipal by claws prohibit the sale of adulterated oils as genuing oils Accordingly those traders dealing in adulterated oils avoid prosecution by placing a sign board or poster in their s- cps to signify that mixed oils are being sold. A copy of such a notic with an English translation is reproduced in the plates facing pages 244 and 245.

C-Linseed cake

(1) QUANTITIES PRODUCED AND QUALITIES

About 133 000 tons of linseed cake result from the annual crush in a first of nearly 200 000 tons of linseed in India. The essential differences in the cale produced by the various types of plant are those of physical appearance and oil content. The cake produced by hydraul c presses is in the form of rectangular slabs while expeller and gham cake is in fairly small pieces of irregular shape.

The value of oil cake as a fertiliser depends on the percentage of at allable nitrogen and as cattle food on the percentage of oil and albummoids Expeller cake as a rule contains the lowest proportion of oil and the eake from village ghan; the most 'The amount of sand and unsoluble matter in the cake depends on the extent to which the seed is cleaned before crushing Being a valuable cattle food inseed cake is however rarely used as a fertiliser

(2) DEMAND

Linseed cake produced by the village ghans is all consumed production is also now consumed within the country. On the other hand a small proportion only of the cake turned out by presses and expellers is consumed locally at or near the place of manufacture and the great bulk is exported abroad. The proportion of cake outturn retained in and exported from different areas has been discussed in Chapter II. The export demand for linseed cake on occasions influences the quantities of linseed crushed in India. When cake prices are favourable in Europe some of the mills which export

their cake output crush linseed to take advantage of these price con ditions storing their oil for subsequent sale. When their oil storage capacity is filled crushing has necessarily to be curtailed

(3) PRICES

The relation of imseed cake prices to inseed prices has already been discussed in an earlier section (see page 220) the average monthly wholesale prices at Bombay Calcutta and Naggur being given in Appendices XLV to XLVII and illustrated in Diagram facing page 221

The seasonal variations in calle prices do not follow either linseed oil although at Calcutta some sympathy between the seasonal variations of linseed and linseed calle prices will be noticed

The cake made be hydraulte presses fetches a higher price than expeller cake in the export trade as will be evident from the following table giving the prices of hydraulte press and expeller cake at Calcutta during 1996 and 1937 Only occasionally is expeller cake sold at a higher rate —

Comparison of prices of hydraulic press and expeller Lanseed Cake

Comparison of	prices of ny	uranic press	una expener	Linseed Cake		
	Price of hydrau cake per mau	the press linseed ad (ex wharf)	Price of expeller inseed cake per maund (ex wharf)			
	1936	1937	1936	1937		
	Ro A P	Rs A P	Rs A P	Rs A P		
Jar uary	286	289	2 1 0	3 2 0		
February	276	2 11 0	200	3 0 0		
March	2 5 6	2 10 6	2 1 0	2 14 0		
Aprıl	2 5 3	286	2 3 0	3 2 0		
May	2 7 6	3 3 0	2 4 0	2 15 0		
June	2 5 6	3 4 9	260	2 15 Q		
July	2 5 3	2 15 6	2 10 0	3 0 0		
August	2 5 9	3 4 0	2 14 0	3 0 0		
September	266	2 11 9	2 13 0	3 0 0		
October	211 6	3 5 3	2 14 0	2 15 0		
November	2 10 0	3 3 6	3 0 0	2 13 0		
December	293	3 4 6	3 0 0	2 12 0		

(4) DISTRIBUTION

Linseed case exported from India is generally sold under the Hamburg Cattle Food Trade Association and the Hamburg Cattle Food Trade Association The relevant extracts from these two contracts are given in Appendices LI and LII Apart from the general terms and conditions of delivery, payment, arbitration, etc., specifications are laid down in respect of the minimum percentage of oil and alluminoids, the maximum tolerance for sand and the limits for rejection in case castor seed or husk is found present

Oil and albummods are usually required to be not less than 35 or 40 per cent. The allowances for deficiences under the guaranteed percentage are essentially the same in both the contracts, being 1 per cent for the contract price for the first 3 units or part thereof, 2 per cent for the 4th and 5th unit, and 3 per cent for each unit over J. The free tolerance for sand is generally 2 to 23 per cent, with an allowance of 1 per cent for each unit over the free tolerance, with buyers option to reject if the total proportion exceeds 5 per cent. The hunts for rejection and the allowances made for the presence of castor veed or hush differ in the two Associations' contracts and are discussed in the following section.

Although the bulk of the linseed cake is exported with a specific guarantee of oil and albummods content the cake made by certain reputable mills is also shipped under the name of the mill, without any guarantee as to the percentage of oil and albummods. Such cake trequently sells at a premium in foreign markets. It should also be mentioned that a certain proportion of linseed cake is sold under an oil guarantee only

The cake destined for the export trade passes into the hands of shippers at Calcutta Bombay and Vizagapatam in much the same way as inveed itself. Shippers usually buy on the basis of their our contracts which generally follow the basis and scales of allowances laid down in the United Kingdom and Continental contracts men tioned earlier. The important difference however is in regard to the scale of allowances for castor seed or husl, which are not only dissimilar to those of the export contracts but also vary between different shippers in India. The scale of allowances adopted by two shippers at Calcutta will show the extent of this variation.

Scales of allowances for castor seed or husk in Lanseed Cake
As adopted by one firm
As adopted by another firm

Upto 001% free 001% 1 anna per maund

Above 004% upto 006% 1 anna per 002% 1½ annas per maund

Above 006% upto 008% 2 annas per 003% and 004% 2 annas per maund.

Above 008% to be rejected Above 004% to be rejected

The other terms of the contracts will be clearly seen from a copy of an exporter's contract given in Appendix LIII

It may be observed that linseed cake owing to dryage on storage and during transit shows a loss in its oil content. The shippers therefore endeavour to keep about 1 per cent in hand between their buying basis in India and the selling basis abroad

The routine followed usually by exporters is similar to that employed when buying and taking delivery of linseed. At Caleutta for example, contracts are always made for delivery at the docks, pre-ferably alongsade the vessel. On arrival a number of bags—usually old but serviceable Heavy C gunnies—are opened and the goods are sampled by the buyer in the presence of the seller. The samples are placed in a tin, sealed and forwarded to one or other of the two or three firms of analysts in Calcutta. The determinations are made usually within 48 hours and the results communicated to the buyer. If the results satisfy the contract terms the cake is weighed over, paid for and shopped, but if the goods do not conform to any of the terms, the buyer charges an allowance or rejects the goods as the case may be

Apart from the purchases made by exporters, the internal trade in lineed cake is not generally based on any specifications and the only quality factors normally taken into consideration are the general appearance and freshness of the cake. Only purchases made by the Military Authorities are on the basis of the specifications mentioned below —

To be made from the seeds of Linum unitationnum and prepared by the hot press methods*

Water Not more than 12%,
Albummonds Not less than 26%,
Fat (oil) Not less than 20%,
Digestible Carbohydrates Not less than 30%,
Woody fibre Not less than 5°,
Ash Not less than 6°,

Total food unit Minimum 90 units (kellner)

The agencies concerned in the distribution of linseed cake for consumption in India are the mills the "telus" or operators of ghanis and the retail dealers of oil who deal in cake as well as in vegetable oils

(5) PRESENCE OF CASTOR SEED AND HUSE IN LINSEED CARE

Consignments of linseed cake exported from India have not infrequently been rejected or subjected to heavy penalties on account of the presence of castor seed or high.

The London Cattle Food Trade Association contract requires longer is entitled to reject the goods only if the percentage of castor seed and/or easter hush exceeds 005 per cent For propor-

*Lanseed contains a symmetric gluconide and an engrous which in presence of water acts on the gluconide with the proportions of a possession mutatings. This enzyme is killed by beating the meal proportion by the pressing in hydraulic presses or expellers. In the crushing of unseed in rullage and rotary downs, although no preliminary heating is done, a sufficiently high temperature to kill the enzyme is developed by friction during the slow process of oil extraction.

tions below this tolerance an appropriate schedule of allowances is provided. The Hamburg Cattle Pood Association contract on the other hand gives the bujer the option to reject even if traces of castor seed or husk be present although rejection is unusual so long as the percentage of castor seed and/or husk does not reach 02 per cent. The scale of altowances vary from 2 to 15 per cent depending on the proportion of this deleterous impurity up to an extreme tolerance of 0.5 per cent. The schedules of allowances laid down by the two associations are as follows.

Scale of allowances for castor seed and hush in experi contracts for Lanseed Cake

Proportion of easter seed and/	Allowances					
or husk not exceeding	London contract	Hamburg contract				
001%	2 sh 6 d per ton	2% of the contract				
002%	3 sh 9d perton	2% price				
005%	5sh 0d per ton	2½% , ,,				
008%	(Reject over 005%)	3½% ,				
02%		41% "				
05%		51% " or reject				
08%		71%,				
10%		9%				
25%		11% ,, ,,				
50%	}	15% ,				

A specific condition in both these contracts is that the analysis of the samples for determining the presence and proportion of castor seed must only be done by the analysis mentioned in the contracts

It may be inferred from the varying bases on which purchases are made in India and sales effected in Europe that the castor seed test is by no means infallible nor the results obtained truly indicative of the quality of the whole of the parcel concerned

It will be observed that the limits of rejection adopted by the exporters for their purchases in India are somewhat different from the London and Hambing Association contracts. For example as has been referred to earlier one large exporter rejects linseed cake if easior seed and/or hush exceeds 008 per cent while another rejects for any excess over 004 per cent only

Contamination with castor seed or bush as has been mentioned in an earlier chapter may conceivably be caused by one or other of several factors e q from castor seed plants growing wild or some times cultivated on the boundaries of linseed fields or through madvertence in the mills in which easter seed as well as hisseed and other oilseeds are regularly crushed or again by the use of secon i hand bags which may have been used to carry castor seed. One large mill in Bengal crushing linseed exclusively and drawing its linseed supplies from the United Provinces and Bihar found one or two odd beans on very rare occasions only and then only in lots of hundreds of tons Another large mill also crushing linseed stated that only once in ten years had a penalty been incurred on a consignment of cake exported to England and never having crushed any castor seed before or since the alleged presence of this deleterious oilseed could not possibly be accounted for Information obtained from the mills in the United Provinces indicated that castor seed and hush were found rather more frequently in their consignments of cake exported Some of these mills crush both linseed and castor seed but it has been asserted that the presence of castor seed was reported in certain con signments in which the most scrupulous care was tal en to avoid any admixture of this kind and that the same cake sold in India for lo al consumption had been freely given to cattle without any injurious effects whatever

It appears therefore that the method of detecting the presence of easter seed as applied to linseed cake is open to some objection The principle of the method normally employed is for a quantity of powdered cake to be treated with hydrochloric acid By this mean the seed coat of the linseed is bleached while such portions of the hush or testa of the castor seed as are present remain as dark brown angular fragments which appear black in water and are easily recomnisable under the microscope Samples of linseed in the United Provinces and Bihar may at times be found to contain several types of wild seeds one such being known as kately seed a small black seed known botanically as Solanum Xanthocarpum If the colour of this particular seed is not bleached by the hydrochloric acid treatment its presence may easily be mistal en for castor seed. No scienti fic work appears to have been done to see how far-if at all-these various seeds would differ in appearance from easter seed after bleach It appears therefore that while every effort should be made to prevent the admixture of castor seed with other oilseeds in the field as well as in the mill the possibilities of other seeds found mixed with Indian linseed being mistaken for easter seed should not be lost sight αf

(6) MANUFACTURERS' ASSOCIATIONS

There are no institutions exclusively concerned with the linesed crushing industry in India. In the United Provinces an association was established in 1934 styled the United Provinces Oil Millers. Association are section of the India Companies Act, so that the income and property of the association may be applied solely towards promoting the objects of the association The membership of the association open to any firm individual com-

pany or corporation engaged in the oil crushing and allied industries. The objects of the association in general are to promote and protect the oil crushing and allied industries in the United Provinces, to settle disputes arising out of trade dealings and commercial transactions and to establish just and equitable principles in the oil and alhed products trade. In Bengal there is an association called the Calcutta Oil Mills Association but its membership is confined mostly to the mills crushing seed by rotary ghants. There are at present no active associations in the Central Provinces. Bihar and Bombay

D —Railway freight on linseed oil and cake as compared with that on linseed

Although small quantities of linseed oil and cale are transported by road and river the bulk of the movement in these commodities takes place by rail and as such railway freights have an important fearing not only on the movement of linseed oil and cake but indirectly on the linseed crushing industry

As has been indicated in Chapter VIII linseed is placed in Class I for the purposes of calculating railway freight, which is 38 pies per manind per mile. Linseed eake also falls in the same class but linseed oil is placed in Class 4 for which the ordinary rate is 62 pies per maind per raile. Schedule rates which are lower than class rates have been allowed on certain railways for linseed oil and cake. For example the schedule rate for linseed cake on the Bengal Nagpur East Indian and Great Indian Pennsula Railways is as low as 1 pie per maund per mile when booked in minimum wagon loads of 300 maunds at owners risk

Specially low rates 122 station to station rates are allowed between certain points depending on the volume of traffic A few specimens of station to station rates for linseed oil and cake are given in the table below together with the calculated schedule and class rates for comparison—

From	То	Bailway system	Dis tance (miles)	Station to sta tion rates	Calculat ed at schedule rates	Calculated at class rates.
Lanseed Oil				Rs A P	Rs A P.	Res A. Pe
Cawnpore Aligarh Aligarh Patna Bombay Lanseed cake	Howrah Howrah Patna Howrah Madras (via) Raichur	EI EI EI GIP M&SM	630 823 485 338 443 351	0 14 11 1 3 0 0 14 6 0 10 9 } 0 15 7		1 6 11 1 12 10 1 1 0 0 11 10 1 11 0
Nagpur Nagpur	Bombay Vizagapa tam	GIP	520 516	0 5 4 0 5 9	0 4 4* 0 4 4*	1 0 6

^{*}Only for minimum wagon loads of 300 maunds

As three mannds of lusseed yield approximately one manna of oil and two mainds of each the relative advantage of despatching inseed oil or lussed from a producing area would depend on whether the freight on three mainds of linseed is greater or less than the combined freights on one maind of oil and two mainds of cake together. If however a local demand exists for linseed each te saving of freight on eake would offer some additional insentive favouring the despatch of the oil. For example the freight on 3 mainds of linseed between Nagpur and Bombav at the station to station rate of Re 0.55 per maind amounts to Re 1.93 while the freight on I maind of linseed old are to 1.36 per maind amounts of amound of 2 mainds of linseed cake at the schedule rate of Re 0.44 per maind for full wagon loads, total up to Re 11.22. Thus it is advantageous for Bombay to buy linseed and crush it locally rather than purchase linseed

As nearly half of the Inseed produced in India and more than three-fourths of the total quantities put on rail are eventually despatched to the ports for shipment abroad, the railways have provided cheap station to station rates for linseed from a number of stations in the producing areas to the ports in order to encourage this traffic. These cheap rates of freight have helped the development of the Inseed crushing industry at the ports particularly as almost the whole of the cake is exported abroad.

INTER-CHAPTER TEN

The Imseed crushing industry has shown striking progress in the last quarter of a century. Prior to that time less than 10 per cent of the total crop was retained but on the average of the past three years over 40 per cent and in 1936 37 over half of the total production has been used in India for the manufacture of oil and cake

There are still thousands of old-fashioned village ghants in use although the number has shown a tendency to decrease in recent years as the large power mills ıncreased The rotary alam is a comparatively crude piece of mechanism but it would be a mistake to judge the efficiency of the village ghans on a strict costing basis It would in any case be difficult as the tell and his family all work at the ghani at odd times and their labour cannot be assessed in terms of cash with any degree of accuracy Apart from any advantages in herent per se in a cottage industry, two important points stand out in favour of the ahan system In the first place the oil so produced sells for edible purposes at a premium of as much as Re 1 per maund above oil mide in the large power mills Further, where the ghanis are found closely associated with linseed production they offer a regular outlet for the growers' linseed and it is observed that the seasonal fluctuation in prices and the depression in prices at harvest time is less where they exist than in those other producing areas which are entirely dependent on the export market or distant industrial crushing centres There is there fore much to be said for encouraging the crushing by ghans in the producing areas, but in order to put them in a better position to compete, it is desirable that some efforts should be made to get rid of the crudities of the old-fashioned equipment at present in use. The depart

ments concerned might with advantage devote some attention to this point

The number of large power driven oil mills in India has increased rapidly in recent years and at least 123 are now engaged wholly or partially in the crushing of linseed No official statistics, however, are available regarding the quantities of the different oilseeds crushed by these mills or even of their crushing capacity, and it is desirable that some more up to date census should be made and regular returns obtained from these establishments These large mills are equipped with different types of plant Some, for example, consist of batteries of rotary ghanis working on the old fashioned mortar and pestle system, others have installed hydraulic presses in which the cooked meal is pressed between plates and the cake residue comes out in the form of rectangular slabs, and others are equipped with expellers consisting of steel worm screws which revolve within a cage so as to produce gradually increasing pressure on the oilseeds to drive out the oil The residue in this case is forced out in broken, irregular pieces similar to ghani cake It appears that the expeller system is growing apidly in favour

The total quantity of linseed crushed by ghanis and power driven mills during the last three years has averaged about two lahls tons. The yield of oil obtained under commercial conditions from linseed as received by the mills, i.e., including the impurities, is about 33 per cent from Small linseed and upto 36 per cent from Bold, the yield in village ghanis is, how ever, considerably less and varies from 25 to 30 per cent only. The cost of crushing appears to vary from Re 060 to Re 14-0 per maund of linseed, or Re 1 to Rs 380 per maund of oil, but the millers' margin, which includes profit as well as the working cost, varies widely

and at times, fleprice of three maunds of linseed shows an apparent loss as compared with the price of the resultant products, viz, one maund of oil and 2 mininds of cake. The millers' margin appears to vary from year to year. In the case of one mill, for example, it was over Rs 3 in 1933 but less than half this amount in the following two years. It would in fact appear, that there is very little relation between the price of linseed, linseed oil and linseed cake. The oil generally sells about 2½ times the price of linseed and the cake about half the price, but different markets vary in this respect. At Calcutta, for example, the price of cake is relatively high and that of oil low. At Nagpur on the other hand where the oil is mainly for edible use the price is relatively high.

The quality of linseed oil varies enormously accord ing to the method of production and subsequent treat ment Oil produced in the village ghanis does not receive any treatment and is consequently not as clear as the oil turned out by the large mills where it is usually filtered or put in a tank for sometime to allow the mucilage and suspended foreign matter to settle The colour of linseed oil depends largely on the tempera ture and method of extraction Oil produced by expellers is generally paler than that manufactured in other types of plant Apart from these small differences in physical characteristics there appears to be little or no appreciable chemical differences between raw linseed oil as prepared by modern machinery and that turned out by the village ghan: For edible purposes oil pro duced by the village gham is considered to be sweeter and to have a better flavour than mill made oil is, however, no clearly understood standard of quality For industrial purposes clear bright oil with good " Boiled " drying properties is generally preferred linseed oil differs from "raw" oil in having added to it, "driers" usually in the form of salts of lead, manganese

and cobalt, which are beheved to act as catalysts in helping the oil to absorb oxygen and to form quickly a firm and elastic film when used in paints, varnishes, etc. It is probable that only about 15 per cent of the linseed oil manufactured in India is sold as "boiled" oil and the production of this type is confined mainly to large mills in Calcutta, Bombay and Cawnpore

Almost all the imported inisced oil is of the "boiled" type and chemical and physical tests of these imported oils show that although they are very popular and command a relatively high price they are in fact no better—and in some respects not so good—as the good class Indian "boiled" oils. These imported oils command a good price on the market owing to their high reputation and also to the fact that they are as a rule sold in scaled containers. This indicates that there is much need for the Indian oil industry to devise systematic standards for the various kinds of products and to put them on the market in containers which cannot be tampered with until they have reached the final purchaser.

There is an enormous range in the price of linseed oils, some of which sell at half the price of others Apart from pure linseed oil there is found on the market a large number of "reduced" oils which in some cases purport to be linseed oil and in others are termed merely "paint oils". These are mixtures of mineral oils, iosin etc, alone or with linseed oil. In the absence of any well defined standard and system of maiking the pure linseed oils, these reduced oils tend to lower the price of the pure product, and manufacturers feel compelled to put out brands which can successfully compete

An analysis of some commercial samples of raw linseed oil showed that about one third were adulterated, Listican

mainly with rosin and mineral oil, and that two-thirds of the adulterated samples purported to be genuine Similarly in the case of boiled oils, more than one third were adulterated and the extent of adulteration varied from 15 to 67 per cent The adulteration of industrial products is not covered by the normal provincial legislation which deals mainly with the adulteration of foods and drugs As the common law would appear to offer very little chance of redress, it seems that so far as industrial oils are concerned, the adoption of a standard quality specification and system of marking by all reputable firms, would be the first step towards solving the adulteration problem As this would not altogether eliminate secondary adulteration by retailers, it would be desirable at the same time to pay mereased attention to the adoption of small conveniently sized containers, on which the seals would remain intact until the product reached the hands of the

Attention has already been drawn to the adulteration of edible oils such as mustard oil with linseed and groundnut oil. Out of 33 samples of mustard oil analysed in the course of this survey, 11 were found to be adulterated probably with linseed oil to the extent of 33 to 100 per cent. It is known also that some irresponsible people go so far as to add allyl isothiocyanate to linseed oil in order to give it the characteristic pungency of mustard oil.

This question of adulteration is serious. It has already been mentioned that the enormous quantity of linseed oil used for adulteration of other edible oils in parts a certain amount of elasticity to the local demand and to supplies available for export. To that extent the practice may be regarded as advantageous from the producers point of view, but this must not be used as an

माल्यात्र



(See reverse for translation in English)

Replos of a signboard put up outside an Oil Merchant s shop in Azangarh (United Frownces)

MIXED OIL IS SOLD AT OUR PLACE.

Facing page 245.]

Vame of Owner

argument in favour of the adulteration of edible oils since the market for pure linseed oil is, on the other hand, very much contracted by the practice of adulterating linseed oil sold for industrial purposes. The market so lost is probably greater than that gained through the use of linseed oil as an adulterant of other edible oils.

Incre is a tendency for those responsible for the administration of food adulteration acts and regulations to adopt an attitude of resignation in the face of the various tricks to which sellers resort in order to elude the regulations In cases where municipal authorities take steps to prohibit the sale of adulterated oils as genuine, a simple device adopted by traders to avoid prosecution is to place a signboard or poster in their shop to signify that mixed oils are being sold. If the authorities were seriously concerned in prohibiting the sale of adulterated products such a move might be en countered in various ways As a beginning it would be desirable to prohibit sellers of edible oils from selling non edible oils used for industrial purposes and those purporting to trade in mixed oils from selling pure oils either edible or non edible. A system of licensing and a graduated scale of heence fees for dealers might be so arranged that those who wish to make enhanced profits from selling mixed or adulterated oils would contribute at a higher rate to the common good

So far as the distribution of linseed products is concerned some attention needs to be directed to the development of an export trade for Indian made linseed oil, particularly in the countries bordering on the Indian and Pacific Oceans Indian linseed oils, both raw and boiled, are of a high quality capable of competing on the world markets, but as a first step, it would be essential that the manufacturers as a body should adopt standard specifications and

systematic marking of export oils, so that foreign buyers could make their purchases with absolute confidence Given this were done, there seems no reason why the export trade and the milling industry in this country should not show a rapid expansion. At present lowever there are only one or two minor manufacturers' associations in existence whose interests appear to be mainly concerned with local affairs and there is some need for a representative all India body to be constituted

So far as the distribution of linseed cake is concerned it is to be hoped that in the near future the development of the darrying and animal husbandry industry in India will create a wider market for this product at reasonable prices so as to avoid the excessive dependence of manufacturers on the export market At present some of the larger exporters in this country and buyers abroad, particularly in the United Kingdom, appear to work on the assumption that manufacturers in India are totally irresponsible in the matter of quality and particularly in regard to the presence of easter seed husk in the cake It is not surprising if, on the other hand, manufacturers here who have taken extra care in the matter, consider that this factor is often used as an evense by the buvers abroad for squeezing a little extra profit There is, it would appear some justification for this belief as the methods of analysis for identifying castor seed hush are not by any means fool proof since other kinds of wild seeds which may be present as impurities, eg, kateli seed, appear to give similar leactions This is a matter for investigation and negotiation which could more appro priately be taken up by some body fully representative of linseed crushers in India

Before leaving the question of distribution of lin seed products it may perhaps be noted that railway

freights, which are generally favourable so far as linseed for export is concerned, are not quite so advan tageous when considered in relation to the rates on his seed oil and linseed cake respectively. It is worth consideration whether a lower freight on oil, especially if tank wagons could be used, would not encourage greater crushing of his-eed upcountry and larger shipments of oil to the poits both for industrial uses and for export to neighbouring countries

CHAPTER XI -SEED

A.—Supplies.

(1) QUANTITIES

The seed required for sowing varies from 10 to 25 lb per acre in different parts of India The average seed rate, as reported by different provinces and States, is tabulated below —

and big	ies, is tabula	ted below -	o, as reported
Assam	Average seed rate per acre lb	Acreag (Average 1934 35- 1936 37) (000 Acres	required for sow
Bengal	14	6	84
Bihar (and Onssa)	21	118	2,478
Bombay and States	12	569	6,828
Central Provinces and States	13	120	1,560
Central India States and Gwahor	14	1,216	17,024
Hyderabad	14	376	5 264
Kashmir	10	431	4 310
Madras	21	27	567
Punjab and States	12	2	24
Rajputana	16	30	480
United Provinces and States	20	149	2,980
Others (North West Frontier Province, Burma, etc.)	20	874	17,480
- Trovance,	15	1	15
Total			
Taking the respective area		3,919	59,094

Taking the respective areas under linseed into consideration, the average seed rate for British India and Indian States works out at 15 lb per acre. The average acreage for the last 3 crops being 3,919,000 acres the quantity of seed normally required for sowing in the country at this rate would be about 26,000 tons.

(2) SOURCES

The cultivator generally sets aside enough linseed for his sowing requirements immediately after the crop is harvested and threshed However, at times, when hard pressed for eash, he also sells the whole of the harvest either at once or later as necessity demands in such cases on the cases of the case of the cases of In such cases or when a producer has no seed or not enough seed

he obtains his requirements by either borrowing or buying from another cultivator, a village merchant or from a commission agent

In the Central Provinces United Provinces, Bihar and Orissa, the seed is usually obtained on the sawar system, meaning, that on repayment the quantity borrowed is to be returned with addition of 20 per cent. In some of the eastern districts of the United Provinces however and in some parts of the Central Pro vinces the system prevailing is known as deorhi, implying the repayment of the original loan plus an additional 50 per cent Such transactions are mostly in kind, but when eash is involved the same additions of 25 and 50 per cent are made to the value of the seed at the time of repayment As the interval between the borrowing of seed (August-October) and the harvesting of the crop (February-April) is about 6 months sawai and deorhi system imply a rate of interest amounting to 50 per cent and 100 per cent per annum respectively. In cash transactions it has also been found that in some parts of the United Provinces (eg, in the Jalaun district) the cash value of the seed advanced was reckoned by the village merchant at the rate of 1 seer per rupee less than the current market rate while at the time of returning the seed it was recovered from the debtor at the rate of 1 seer per rupee higher than the current rate Thus the borrower lost both ways 16, by one seer per rupee at the time of borrowing and another one seer per rupee when he returned the seed If the seed is not returned or the repay ment not made immediately after the harvest another 25 per cent calculated on the total sawar amount of the previous year is added for repayment in the following year

The sauan system is also largely prevalent in Central India and Rajputana States

In the Bombay Presidency about two thirds of the cultivators appear to retain their own seed for sowing and the rest purchase what they require either on cash or credit from commission agents or sabukors. For advances of seed on credit the local commission agents charge interest from 12 to 18 per cent on the value of the seed while some sabukors charge in kind recovering one and a half to doubt the quantity of seed originally lent

In Bengal and Assam as well as the Punjab the main source of the cultivator s seed supply is the seed stored by himself but it may be supplemented by borrowing or purchasing from other cultivators or from village merchants as and when necessary

(3) DISTRIBUTION

The distribution of linseed for seed purposes as above stated, is mainly undertaken by village merchants sahukars and cultivations. They either retain sufficient linseed out of their own produce or collect from others at harvest and offer it for sale at sowing time. There are no seed merchants in the real sense of the word.

Other distributing agencies for seed are the Government agricultural farms and seed stores in the different provinces and States

but the quantities distributed in this manner are still so insignificant that the amount of seed does not appear in the majority of the annual reports issued by the various provincial Departments of Agriculture The only two exceptions appear to be the Agricultural Departments in Bengal and Bihar. In the former area, the total Department in Longia and Jane 1997 amount of seed, Presumably pure, issued by the Department in 1934 35 amounted to about 53 mainds only In the following year about 7 maunds were distributed In Bilar, one of the most only about a maintal were distributed. In Dinar, one of the most important producing tracts in the country, the amount of seed distributed in 1934-35 and 1935-36 was less than 4 mainds. From the two instances quoted it will be clear that a good deal remains to be done in the way of providing the cultivator with good pedigree seed

The methods of seed distribution adopted by the Agricultural Departments are much about the same in the different provinces In the United Provinces for example, the seed is issued from the seed stores or from the agricultural farms either on cash payment at a price which is about 10 per cent higher than that of the local desi varieties, or on credit on the usual sauai conditions

B-Control of Supply of Pure Linseed

While considerable research work has been done in evolving better stelding and disease resisting varieties of linseed there appears to be httle control over the supply of seed, pure or otherwise One or two isolated attempts appear to have been made to improve the quality of the erop grown, as for instance in 1935 when the Department of Agriculture in the United Provinces arranged to give special grants in aid amounting to Rs 3 per acre or alternatively a remission of half the land rent, whichever was less, for sowing linseed on approved plots selected for the purpose

In the Central Provinces, it has been reported that no control is exercised over the supply and the variety of seed sown by producers as the Government farms are not in a position to supply growers with any appreciable quantities of improved types In the United Provinces a similar state of affairs may be said to exist in general regarding the control of the quality of seed used by cultivators and a like situation obtains in Bihar, in Orissa, in Benjal and in the Bombay Presidency In each of these provinces the Producer sows whatever seed he can save out of his produce or obtain from merchants sahuhars or fellow cultivators

C -Seed Growers' Associations

The reports from various provinces indicate that there are no seed growers' associations

D -Quality considerations

The economic value of any variety of linseed depends on the percentage of oil in the seed together with the yield obtained per acre, or in other words the oil per acre. High yields are obtained only if the variety is suitable to the soil and climatic conditions of the locality where it is grown The quality aspect is, however, not

taken into account by producers who generally sow whatever seed happens to be available. Cultivators who grow hinseed year after year do not generally change their seed

As a rule the small type of linseed which is lower in oil content than the bold gives a higher yield per acre. In the Central Provinces however the size of the seed becomes larger progressively from the east to the west of the province and the yield per acre also increases. It is also reported from the Bombay Presidency and from the Punjab where meidentally only small linseed is in general cultivation that the yield is higher from the large grained types. In such areas there is no object in extending the cultivation of the small seeded types of low oil content.*

It was observed that little or no care is taken to clean the seed preparatory to sowing in order to free it from mixtures of wheat and gram Instances were also noticed in Bihar and Orissa in which the linseed was sown amongst the standing rice crop

E-Research Work

As has already been mentioned the linesed plant in India is grown entirely for the oilseed and not for the production of fibre The possibilities of combining the production of linseed with that of flax and the establishment of a fibre industry have been the subject of numerous experiments in India Seed specially imported from Europe has been employed in flax trials and in many cases a satisfactory fibre obtained But various difficulties such as the necessity for storage and retting and for importing fresh seed for sowing at frequent intervals place the cultivation of flax far beyond the means of the ordinary grower. Its cultivation has therefore made no progress in India and subsequent research work has been directed towards improving the quality of linseed and the yield per unit.

Pusa—Various commercial samples of linseed from different and the folial were collected and examined at the Agricultural Research Institute Pusa where they were sown in 1915. The elementary species were isolated and classified after several years of siccessure sowing The oil content and size of the seed were found to vary in these different types. They were also found to be suitable for different soil conditions. Those with a deep root system were best for the soil conditions in Peninsular India while system were best for the soil conditions in Peninsular India while the plants with a shallow and abundant root system were suited the plants with a shallow and abundant root system were suited the grant of the small number of bold seed with a high percentage of all and the small number of bold seed with a high percentage of all and the small number of bold seed with a high percentage of all and the small number of bold seed with a high percentage of all and the small number of bold seed with a high percentage of the small number of bold seed with a high percentage of the same substitution of the latter Types 12 and comparatively poorer in oil content. Of the latter Types 12 and comparatively professed to be highly islding and were distributed to growers. 121 were found to be highly islding and were distributed to growers.

[&]quot;The 'drying' value of the oil from the seed is another important consideration but very little work has been done in this connection

types giving a high yield of seed. Some of the best of the small seeded types (of which Types 12 and 121 have just been mentioned) were crossed with several of the bold seeded types. The inheritance of characters was studied, and about 80 hybrids were isolated from these crosses and the most promising types tested for yield and oil content. Some of these hybrids are about equal in yielding power to the small seeded Types 12 and 121 and are being fried out in the provinces. The results of crosses between rust resistant and rust susceptible types are under investigation and some Australian types are also being tired. There were also some indications of a correlation between seed colour and oil content. The yellow seeded types possessed the highest oil content, this factor decreasing as the seeds errew darker in colour

The position in regard to the research work undertaken in the main lineed growing provinces may be briefly summarised as follows——

Central Provinces—Experiments have been in progress for a number of years to hybridise and select heavy yielding rust resistant and early maturing types of bold linseed E B 3 linseed is an early maturing type which generally escapes rust and is regarded as the local standard Crosses between local linseed and rust resistant Pusa varieties are under trial on an experimental farm The processy are said to be rust resistant

United Provinces —The Research Section of the Department of Agriculture has evolved many new varieties of Inseed Selected strains although higher yielders are more susceptible to rust Cross breeds give bolder seed contain a higher percentage of oil and are almost immune for rust. Attempts are being made to combine the high yielding quality of selected strains and the high oil content of cross breeds. Experiments conducted regarding the effect of irrigation and the time of sowing prove that a higher seed yield is obtained if the crop gets 3 waterings and is sown in the third week of October.

Bihar and Orssa—The botanical section at Sabour is concentrating on the varieties of thissed grown in Bihar as well as the breeding of a type which will be resistant to wilt which is a very common disease of linsed. Promising results have been obtained but it is too early yet to introduce the new strains for general cultivation.

Bombay —In order to find a suitable variety for the Presidency, samples from 31 districts and 16 pure type selections were tried out. The results indicate that the local varieties are better yielders but the non Presidency types may form suitable material for hybridization for the production of bight elogical season.

Bengal -Five types of pure lines of linseed have been isolated from the Bengal crop Four local varieties have been isolated whose

^{*}The Inher tance of Characters in Indian Linseed by F J F Shaw A R. Khan and M Alam-Indian Juarnal of Agricultural Science—Vol I.—1931

oil contents have been found to be as high as 42 per cent but they are not botanically pure

Statistical analysis of variance in yield isolation of pure types from amongst the richest varieties and yield of the types richest in oil along with other points have been taken up by the Second Economic Botanist. The University of Dacca is also conducting experiments under the supervision of the Department of Agriculture and analysing the oil content of the Bengal bred types but no results capable of practical application appear to have been obtained as yet.

Punjab—The olseeds Botanist at the Punjab Agricultural College Lyallpur has isolated 33 pure types from the mixtures grown in the province. Some of the types gave a maximum yield of over 1800 lb per acre and possessed an oil content of over 48 per cent in the dry seed. Bold seeded varieties of linseed are preferred owing to their higher oil content, but in most districts the small seeded varieties are better suited to local conditions owing to their characteristics of late flowering and late maturing and striking roots more readily. In order to evolve a high yielding bold seeded strain possessing the growth habit and other desirable qualities of the small seeded variety the bold seeded and small seeded types have been intercrossed. The work is at present in progress and holds out promise of success.

The seed of a white seeded hybrid has been obtained and its program has been intercrossed with some of the local bold seeded types which are brown in colour with a view to obtain an improved strain of higher coloured seed with the desirable characteristics of the bold seeded variety

F -Further possibilities

Indian linseed ranks very high in quality among the produce of other countries of the world Second only to Baltic linseed it is superior to Argentine linseed. Its inferiority to Baltic linseed it is superior to Argentine linseed. Its inferiority to Baltic linseed is largely due to the presence of foreign matter and other oil seeds, such as mustard rape and owing to these crops being grown side by side with the linseed plant. It has been proved that when the midgeous product is carefully separated from these foreign seeds the oil expressed from Indian linseed possesses, as good drying properties as the hest Russian oil.*

The growing of clean seed and improved strains will further research raise the economic value of Indian Imseed and if by further research work more suitable varieties which are disease resisting high and have a high oil content are evolved greater possibilities for Indian Imseed in the world marlet may be visualised. There are Indian Imseed in the world marlet may be visualised and the world marlet may be visualised and the result of the seed of the areas under improved seeds. What is wanted at once is the creation of some form of organization for the distribution of suitable types of seed so that the cultivator may receive better value for his money and labour.

^{*}Chem cal Technology of Oils Fats and Waxes Lewkow tsch Vol. II page 55 (1970 Edition)

INTER CHAPTER ELEVEN

In other countries there is generally a section of the trade which specialises in the production, multiplication and distribution of improved strains of seed to producers. In India this function is left to the Agricultural Departments. The amount of seed sown varies from 10 to over 20 lb per acre and the total requirements are in the neighbourhood of 26 000 tons for seeding approximately 4 million acres.

It is rather pathetic to learn that in the course of two years only 57 maunds of improved linseed were issued by the Agricultural Departments in Bengal and Bihar and that in other provinces and States the amount, if any, was not worth reporting

In regard to wheat the position is much better view of the amount of experimental work which has been carried out, the stage has now been reached where definite efforts finally to test on a field scale and introduce into general cultivation in a systematic manner, superior strains of hiseed are called for Though agricultural departments, with limited resources, have done much in the way of seen distribution there are many crops on which little has been done. Moreover, there is need for the development of a new technique on broader lines for the systematic multiplication and distribution of agricul tural seeds of all kinds. It may well be found desirable to allot these duties to a special staff of the Agricultural Department which should be charged with the duty of organising the production and distribution of improved seed, say by establishing and maintaining suitable forms of seed growers associations for the purpose

The seed used by the cultivator is generally retained by him. But often he feels compelled to sell all his crop in which case he borrows generally from the village merchant on sawar or deor he terms In the former case he is bound to refund at harvest time, i.e., after an interval of about six months, 25 per cent, more than the quantity borrowed and in the latter case 50 per cent, which works out at a rate of interest equivalent to 50 and 100 per cent per annum respectively In Bombay Presidency, however, at least one third of the growers obtain their seed on credit from the local sahuhars in kind, who take repayment in kind equal to one and a half or double the quantity of seed originally lent, which is equivalent to about 200 per ent per annum Apart from this where the seed advanced is reckoned in terms of cash, the village merchant generally calculates the rate at one seer per rupee less than the current market value when making the advance, and recovers from the debtor at the rate of one seer a rupee more than the current rate on liquidat ing the debt, so that the borrower loses both ways

In the matter of research the possibilities of combining the production of linseed with that of fibre require further study even although it has already been the subject of numerous experiments in India. Some of the hybridising work indicates that it would be possible to secure a high yield of oil per unit per acre, eg, maximum yields of over 1,800 lb, per acre, with an oil content of over 48 per cent in the dry seed have been secured on Government farms, and it is desirable that some efforts should be made at an early date to see whether such results are capable of practical application on the cultivators' holdings

CHAPTER XII -- WEIGHTS AND MEASURES AND UNITS OF SALE

The chaotic state of weights and measures in the country un doubtedly hampers the development of organized trading. The unscrupulous also take full advantage of the diversity in the existing systems of weights and measures.

A -- Weights and measures in current use

(1) Weights

There are so many types and kinds of weights in India that they differ not only from village to village but even within the village steel. The Railway or as it is sometimes ealled the Bengal mannd (82 2), 1b) with its sub multiples* is however the only recognized standard weight throughout the country being in general use at most of the larger trade centres

The standard maund and its sub-multiples are usually made of east iron in the form of truncated cones or in rectangular shape that denomination of each is embossed on the casting. On the other hand the weights used in the villages may be made of pieces of iron of all kinds of shapes and condition stones bricks or even bits of customer of the structure of the structure which reported as long ago as 1913 dissipation of the situation in the provinces in great detail. The conditions which then prevailed continue unchanged to the present day except that legislation for standardisation of weights and measures has been enacted in three provinces. Bombay Central Provinces and Coorg

The local weights known as *Lachcha* weights are numerous and are used either exclusively or monunction with the standard in the *Lachcha* seer may be quied in the Honormous variations found seer varies from 31 tolas in Hoshiarpur to 102 tolas in Dera Ghazi in the United Provinces the 92 tolas seer is in use in Hamir of Gorahhpur (United Provinces) and the adjouing tracts of Bhar of 4 Gorahhpur (United Provinces) and the adjouing tracts of Bhar of 4 Gorahhpur pice the weight of a varving number of *Gardos* the local seer is based in the seer is equivalent to 110 tolas in certain villages (Amkhera Chabr etc) of one telsul in Jahan in Gohan etc) of the same tehal. The situation is still further for different commodities. For example at Campner the main I for oilseeds is equivalent to 412 seers for groundnits 50 seers for

^{*}These are the tola, chhatank and seer as follows —

1 tola = 4114 oz (180 grains i.e. the weight of a ruppe)

5 tolas = 1 chhatani = 1 chhatani = 1 seer (2 0.07 lb)

40 seers = 1 manud (80 2857 lb)

wheat and other cereals 414 seers and for tobacco and sugar 454 seers So far as the Inseed trade is concerned, standard weights are commonly used both in Bengal and in Assam. In Bombay stamped weights only are permitted under the Bombay Weights and Measures Act. In Kashmir, standard weights are used in the wholesale trade, but two local weights, namely, the Pai which varies from 20 to 32 seers, and the Khiritar which is equivalent to 83 seers, are in vegue in the rural areas.

The same weights are used for the weighment of linseed oil and cake, but variations have also been found in the number of seers per maind for oil in different markets and for different oils in the same market

(2) Measures

(a) For Lanzeed—Conditions regarding measures are even worse, if that is possible This is so because measures are usually not based on any common factor, such as capacity to hold a definite weight of water, but are apparently made to hold a particular weight of the staple grain of the locality where they are in use constructed by willage artisans and are irregular in size while the practice of using them heaped further leads to malpractices. Measures are usually made of iron, brass, wood, closely bound bamboo strips, or earthenware

The chief measure for grain and olseeds in the Central Provinces is a Pails the half being known as Adholt. There are other divisions which are by no means uniform. The Pails itself differs from 160 tolas in Amraots to 40 tolas in Mandla. The integral multiple measure of the Pails is the Kuro or the Katha. The higher multiples are the Main, the Chowks, the Maund and the Khandy

In Central Indua and the Rajputana States, similar measures are also in use, the chief being the Paula varying from 8 to 20 seers and the Kuran varying from 2 to \bar{s} seers

Weights are more generally used than measures in the United Provinces, except in some eastern districts where the Sayee or Ser (equal to a local seer of rice) and the Pails or Kurai respectively are in vogue

In Bihar and Orissa, on the other hand, measures are very extensively used. The Paula is a common unit, though others for example the Kata and Gonia, are also encountered in many places (though tiese differ both in name and capacity from place to place)

Hyderabad also uses the Pails which in that State is equivalent to 4 seers, the 2 seer unit being called Adheli or Map in different markets

Basket measures are in vogue in Assam and may contain anything from 2 to 5 seers. The Madras measure holding 2 9 lb is in use in that Presidency, while Burma adopts a basket with a capacity of 9 gallons. Another form of measure used in the countryside in Burma, not necessarily for linseed, the trade in which is insignificant, is the common condensed milk tin The Bombay Weights and Measures Act has fixed the seer and its sub multiples and multiples as the measures of capacity, the 2 seers measures being called the Adhoh, and 4 seers the Pyah, 16 of which make up a maund The Map consists of 2 maunds

(b) For oils —The mills use the gallon measure, there being two types viz, the Imperial gallon and O M (old measure) gallon Ine former holds about 3½ lbs of inseed oil and the latter 8 lbs

The O M gallon is more generally used in the retail trade for paints, variables and for the oil consumed in this trade. In Bombay the use of the O M gallon was originally prohibited under the Weights and Veasures Act, but it was later modified to the extent that its use has been permitted provided the corresponding content in terms of the imperial gallon is shown on the container

(d) CHECKING OF WEIGHTS AND MEASURES

Except in the case of Bombay where the Act enjoins periodical checking there is no systematic verification of weights and measures. It is true that most of the local Governments have framed model by claws and these have been adopted by the different local bodies but it appears that they have been more honoured in their breach than in their observance. The Punjab Municipal Act of 1911 provides for the checking of weights and measures by standard weights to be kept by the municipalities but during this survey it was discovered that the standard weights of the Delhi Municipality which is governed by the Act were not even traceable in its office

B-Scales employed

The scales used in the linseed trade are of three types, namely, nand scales beam scales and platform scales

The typical hand scale has its pans made of leather, bamboo or from and is used both in the retail trade as well as in the wholesale trade for weighing generally up to a seers. The pans of beam ales are made of iron or wood and are suspended from the ends or the beam by chains or strong ropes. They are used for dealing with heavier quantities eg bags of seed or tins or drums of oil Platform scales and weighing machines are used by railways oil citils in one or two markets by a few merchants and in certain cases by exporters mainly for checking purposes. It has however been noticed that the weighment of linseed bags even when bought by sluppers or crushers is preferably carried out on beam scales In spite of the obvious convenience of platform scales in weighing must loads cultivators and merchants seem to have greater con f dence in dead weight machines where the weights and the Lalan ng of the scale can be seen. This factor heades the low mittal st of the beam scale and its freedom from mechanical complica tions accounts for the widely prevalent use of this type

C .- Units of sale

With the great diversity existing in weights and measures the units of sale both for price quotations and transacting delivery necessarily vary in different provinces and markets

(1) FOR PRICE QUOTATIONS

Of the two main linseed markets, Bombay and Calcutta, the quotations in the former are per hundredweight (112 b) and in the latter per maund (82 27 b). In the Central Provinces and Central India, prices are quoted per Khandy in some of the wholesale markets and per Man in others. The Khandy may be anything from 5 to 25 railway maunds while the Man varies from 4 to 20 railway maunds the latter being both a measure of weight as well as of capacity. In the village markets in these areas, however, prices are quoted per Pails or other measures or per rupee in terms of measures. In the Raiputana States the quotations are either per audid or per Man, varying in different States. Prices in the linted Provinces are generally quoted per maund in most of the wholesale markets and also in terms of seers per rupee. In Bihar and Orissa, the quotations are per maund in wholesale markets and in terms of local weights in the villages. The Palla is the unit of transaction in Hyderabad

Price quotations for oil may be based on the railway maund, local maund, tin gallon 5 gallon drum or seers per rupee in the wholesale trade in different markets and per seer in terms of local as well as standard weights in the retail trade Boiled oil is more commonly quoted on a gallon brise or per a gallon frum than by eight, and huseed oil imported from abroad is usually sold per 5 gallon drum.

(2) FOR TRANSACTING DELIVERY

The unit of delivery in wholesale markets is usually a bag of 24 mainds net. Where linseed is brought by earts to wholesale markets or to mills in bulk the unit of delivery is a cart of about 16 mainds. Lots of 10 or 12 tons are common units of purchassiby exporters and mills. As regards futures transactions these are in units of 25 and 10 tons in Bombay and Calcutta respectively but a certifun amount of "futures tradition in 5 ton units taked place at Bombay under the auspices of a small association."

So far as weights are concerned it would seem desirable to standardise the Bengal (Railway) maind of 82 2 7 lb (=100 lb Trov) together with the other two weights or common ase 33 the seer and the tola (the weight of a rupee) throughout the whole of India These cardinal weights should stand in the relation

50 tolas = 1 seer 40 seers = 1 maund

The standardisation of liquid measures throughoit India would seem to present no fundamental difficults since a gallon of linseed on occupies the same space as a gallon of any other liquid. As the ubiquitous, I crosene oil tim which contains 4 Imperial gallons is India's "universal container", it seems probable that the Imperial gallon would be found the most generally acceptable standard of Listicas.

liquid measure for the whole of the country Further, it seems desir able that the containers used for oil should be clearly marked with their capacity

Gram measures, however, present a problem of considerable difficulty. No measure will hold the same weight of different kinds of gram or of the same kind of gram grown in different parts of the country. The quantity contained in a measure differs accordingly as it is 'heaped' 'or 'struck', and depends also on whether it is shaken or not. Two people can seldom get exactly the same amount of gram into a measure. Their use, therefore, is an art which as often as not leads to artitulness. Standard gram measures could only be presembed on a local basis after close study of local could it one such matters in use. The question is well worth the serious attention of Provincial Governments within whose sphere such matters he

INTER-CHAPTER TWELVE

In the Bombay Piesidency, the common tailway maind of 82 2/7 lb, with sub-multiples, has been standardised. One maind equals 40 seers and one seer equals 80 Tolas the Tola being of 180 grains—the weight of a rupee. Provision has also been made for testing and stamping of weights and for the inspection of the weights in actual use. This has been definitely to the benefit of the trade and the agriculturist and the scheme is rather more than self supporting. Elsewhere, little has been done and it is unfortunate that on this vital matter there still remains a great deal of mertia to be overcome in some quarters.

In the linseed trade particularly, it is found that buyers in the villages customarily purchase on the basis of a heavy seer and sell on a lighter one The seers vary enormously, eg, in the Punjab the hachcha seer ranges from 31 tolas to 102 tolas and in the United Provinces from 40 to 112. In some of the eastern districts of Umted Provinces and the adjoining parts of Bihar, the local seer is based on the weight of a varying number of gandas of "Gorakhpur" pice, weighing from 125 to 250 grains At Cawnpore, a maund of linseed equals 412 seers, of groundnuts 50 seers and of sugar 18½ seers At the two main linseed markets at Bombay and Calcutta the quotations are per cwt (112 lb), and per maund of 82 2|7 lb respectively In the Central Provinces, quotations are on the basis of the khandy in some of the wholesale markets and per man in others, but the khandy may be anything from 5 to 25 railway maunds and the man from 4 to 20 railway maunds, the latter being a measure of capacity as well as weight

There seems no necessity to multiply instances The position is too absurd. As a first step towards the improvement of agricultural marketing and of business in general, it is essential that standards of weights should be defined for the whole of India

The position so far as measures are conceined is equally ludicious. Measures of capacity in grain present a problem of considerable difficulty since no two measures are able and even the same measure will not hold the same weight of different parts of grains or of the same grain grown in different parts of the country. The quantity also aries according as to whether the measure is "heaped" or "struck." Wherever possible, grain and seed measures should be replaced by standard weights but, where local custom is strong, provincial governments might with advantage establish standard measures

A gallon of linseed oil O M (old measure) weighs about 8 lb, and the Imperial gallon about 9½ lb. The standardisation of liquid measures throughout India should however present no fundamental difficulty since a gallon of linseed oil occupies the same space as a gallon of any other liquid. The common use of the kero sene oil tin throughout India seems to indicate that the Imperial gallon would be found the most generally acceptable standard of liquid measure for the whole of the country. Even in cases where local Governments feel compelled to introduce standard liquid measures, other than the Imperial gallon, it would be desirable that such measures should be capable of being easily convertible into terms of the Imperial gallon so that measures used in different provinces would be comparable

As enquiries have shown that many of the scales in use are defective or inaccurate, the periodical testing of scales is as necessary as the inspection of weights. Beam scales are most useful and preferred to flat or spring weighing machines, as buvers and sellers in India have more faith in dead weight measures believing that they are less adaptable to malpractices.

In connection with any legislative provision for the standardisation of weights, it is essential that executive action should be taken to ensure that the scales used are correct. This is a matter for provincial governments. It may be added that the survey has shown that if the administrative responsibility for weights and measures is left to Mumcipalities and other local bodies, no real progress can be expected.

RINAL INTER-CHAPTER

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

As the object of this survey is to improve the returns to producers, the question arises therefore how this is to be done

We have seen in the course of the report that oil 13 the main product derived from linseed and that about half of the crop is retained in India and a similar quantity exported so that the exports and the internal market are of about equal importance A substantial amount of linseed oil is used for human consumption, mainly in substitution for other edible oils or for purposes of adulteration Linseed oil in turn can be replaced by other edible oils. In consequence the price which the consumer will pay for edible linseed oil is limited by the price of other vegetable oils and no incentive to a general use in the piece level can be expected from this source In the export trade the selling price of Indian linseed is limited by voild competition and particularly by the price of Aigertine linseed even although the intrinsic quality of Ind an linseed enables it to command a premium

The main problem therefore is to secure for growers a larger share of the price which buyers are prepared to pay. At present he only gets about 10 annas in the rupee of the price paid by the exporters and the large millers at the ports and a little more than half the price paid by buyers in the United Kingdom. There appears therefore ample scope for reducing the price margin in favour of producers.

Reduction in Market Charges

This report shows how numerous these charges are and how heavily they bear on producers. One thing in

particular seems clear, namely, that the charges are relatively higher where the payments and deductions are made in kind instead of in eash. Such payments in kind have a tendency to grow. An anji (handful) for example instead of being 4 chhatanks becomes 24. Over a dozen different kinds of charges are frequently met with in the same market, and since most of the linseed passes through at least two markets the cumulative effect becomes considerable.

More systematic control of market charges is urgently called for by the establishment of regulated markets on the lines of those which already exist for cotton and some other commodities in the Central Provinces, Berar, Bombay, Hyderabad and Madras, and appropriate provincial legislation on these lines should present no difficulty. The essential features of such legislation would be -(a) defining of market areas, (b) the licensing of prisons operating in the market or entitled to take fees or levy charges in the market (c) registration of charges and fixation of the amount to be charged (d) establishment of some system of control to ensure that the market regulations are observed

It is unlikely that much progress will be made if the establishment and control of regulated markets is left entirely to Minnerpal authorities which are upt to be influenced by vested interests. Moreover they themselves are sometimes the worst offenders as heavy charges in the are sometimes the worst offenders as heavy charges in the form of terminal taxes and octrol duties on agricultural produce marketed in the municipality often fall mainly produce marketed in the municipality often fall mainly on the producers and not on the urban consumers. Some regulation of oction charges in indeed a matter for serious consideration.

Market News Service for producers

When market charges are registered they should be posted up conspicuously in the market. There should be an open declaration of prices whether or not the selling is done under the purdah. The daily prices should be posted up not only in respect of the market concerned, but also of the more distant key markets.

Although initial steps have been taken to broadcast linseed pinces much more needs to be done to get the information regularly into the villages. It would serve no useful purpose, however, to broadcast the official prices recorded in provincial gazettes, as these are not repre-It should be one of the principal functions of provincial marketing staffs to collate reliable trade quotations, to organise the proper recording of prices in secondary markets and to provide summaries for broadeasting in terms intelligible to villagers

It may be observed that the official estimates of yield per acre and of total production and even of the acreage seeded are far below the actual Some improvement in this respect is urgently required.

Reduction in Harvest Time Depression of Prices

The seasonal depression in some parts is as much as 25 per cent and there seems therefore scope for controlled sales in these areas The co-operative movement might be helpful in this direction but it has so far shown very little enterprise in the marketing of linseed seasonal movement in prices is less in those producing areas where village ghanis for crushing linseed are numerous, something should, therefore, be done to stop the present tendency for their numbers to decrease This problem could best be solved by improving their efficiency and making mechanical improvements in their old-fashioned equipment. They could in this way be

put in a position to compete, particularly as gham oil for edible purposes commands a premium of about Re 1 per maund over mill made oil. There are indications also that there is room for further development of large scale mill crushing of linseed say at Bombay, as this would prevent stocks at that market from having too depressing an effect on export prices.

"Futures" markets have a stabilising effect on the pince of linseed up to September, but the subsequent price of the May "future" shows a beaush tendency, particularly at Calcutta. It would appear desirable that the September "futures" should be put back at least till October and that the Var "futures" should not be opened as early as at present. In addition to the two "futures" markets which operate at present in Bomba and Calcutta, facilities might also be created at a limited number of points in the producing areas for the legitimate hedging of linseed stocks. The reform of the present system of "futures" markets however requires fur the examination in consultation with trade interests.

Economies in Distribution

Apart from the market charges already referred to the report shows that there is a considerable amount of waste incurred in earrying duit and other impurities in the linseed long distances by rail and in having the linseed cleaned and recleaned at different stages when as a matter of fact the impurities could without extra cost, be largely eliminated before being londed. To some practice of sowing mixed crops but this is a minor factor and the important point seems to be that the inclusion of a fixed non mutual 5 per cent deduction on account of refraction in the trade contracts at Calcutta practically compels sellers to adulterate the produce beyond that limit. This is an item that could easily be dealt with

by the standardisation of contract terms within the trade and the introduction of mutual instead of non-mutual terms

Railway freight is responsible for a large proportion of the distribution costs, but in this case the railway companies provide a large number of relatively cheap rates and there is, therefore, no inducement to carry linseed by road between points connected by rail Considering that linseed is very sensitive to damage by water which in turn seriously affects the quality of the oil produced, there appears to be at some points need for better services to be provided by the railway companies in respect of better accommodation at loading stations, and some effort should also be made to eliminate what appears to be a one per cent loss in weight owing to the damage done to bags in the course of transit

The bulking of linseed at upcountry markets would apparently lead to cheaper storage and to less damage being done to the product, but transport in bulk by rail does not vet seem feasible Bulk transport by sea from Bombay to the United States of America apparently results in an economy of Rs 2 or Rs 3 per ton, and the question of taking their linseed in this form is a matter which should receive the consideration of the United Kingdom buyers.

Uniform Weights and Measures

Malpractices in legald to weights and scales are practically universal. In the case of linseed particularly, the general custom in the village is for the middleman to buy on a heavy seer and sell on a light one

The first and most urgently required measure of reform is the standardisation of weights and measures

throughout India. The tola, seer and maund should be standardised in the relation 80 tolas equal one seer, and 40 seers equal one maund.

Measures for grain are a difficult proposition but for oil there seems no reason why so many different kinds of gallons should be in constant use and it would be highly desirable that all local Governments should make some attempt to adopt as a standard the imperial gallon

Elimination of Adulteration

Lanseed oil is used extensively for the adulteration of other high priced edible oils This imparts a certain amount of elasticity to the demand and keeps the price of hased oil more or less in line with that of others but the practice is reprehensible Linseed oil is in its turn subject to heavy adulteration by rosin and mineral oils, etc While the case of edible oils could and should be dealt with by a stricter administration of the provincial food and drugs adulteration acts, there is much need for measures being taken to control the adulteration of non edible linseed oil used tor industrial purposes oil industry itself could do a good deal to improve the position by adopting uniform standard quality specifica tions for different grades of linseed oil, both law and boiled, by establishing recognised marks on containers and particularly by encouraging small containers which could remain scaled until they reach the final buyer

Higher Prices for Higher Quality

It is clear that the large Bold type of hiseed has a higher oil content than Small lineed and should command

trade should draw a clear distinction between the two types Fortunately discussions between the Central Marketing Staff and seed trade organisations have resulted in an agreement for a standard all India contract for lin-eed, which not only clearly defines the different types but includes a scale of premia and discounts The general adoption of this contract would be of mutual benefit to the t ade and to producers and should do much to secure to the growers of good quality linseed, premiums for their produce more commen urate with its intrinsic value

Distribution o Improved Seed

The production of high quality linseed is linked with the question of providing improved seed. The efforts of the Agricultural Departments in this direction are insignificant and a strong effort on entirely new lines, probably by the organisation of seed growers' associations is required to make improved seed in large quantities readily available to cultivators

Research work on Government farms has resulted us the production of linseed having an oil content of 48 per cent as compared with a normal of 42 per cent, and giving a crop of 1 800 lb per acre, as against an average standard yield of somewhere about 400 lb be seen however whether and how far those results could be reproduced on cultivators' holdings

Expansion of the Market

There has been some reduction in the export market for Indian lin-eed in Continental countries reduction has been the natural result of general trade re-triction imposed by those countries It is however a question as to how far those markets could be reguined At present the Umted Kingdom provides by far the most

important outlet for Indian linseed and this has increased considerably since the introduction of the Ottawa Agreement in 1932-33

It would appear that the Agreement has been mutually beneficial in that India has secured a more stable and larger share of the United Kingdom raket whilst buyers in England have not had to pay, on the iverage, any more for their linseed as compared with the evidity price for the Argentine linseed before the introduction of the tariff preference

The expansion of the internal demand for linseed depends entirely on the development of the local crush ing industry which has made enormous strides during the last 25 years Appreciable quantities of linseed oil are still imported even though the standard of quality of Indian oils is now as high, and indeed in some cases higher than that of imported products The latter are still however in favour by many buyers including small actualers, on account of the fact that they are sold in branded sealed containers and are of dependable uni form qual ty This lesson therefore should not be lost on our own manufacturers who should take similar steps to make their product equally commendable to users If this were done thoroughly there seems no reason why as well as extending the market for Indian linseed oil m India, a good export trade might not be developed, especially in those countries bordering on the Indian and Pacific Oceans which are conveniently situated for being supplied direct from India It is difficult to see, however, how this is to be achieved unless the industrial interests are prepared to unite together in a common cause A strong representative all India association of manufacturer, should be capable of ensuring a higher reputation not only for oil but also for linseed cake ex ported from India, and could do something to counter

act the adverse effects on the export trade in cake, caused by the operation of somewhat onerous restrictions and what seems to lie a too strict interpretation of the contract terms relating to the presence of castor seed husk

It is to be hoped, however, that in the near tutne with the development of the dairying and animal his bandry industry in this country, it may be possible to absorb a greater quantity of linseed cake at reasonable prices. This will be for the benefit of agriculture as a whole and particularly advantageous for mills located in villages of the producing areas.



APPENDIX I

18 win acreage, production and exports of Lanseed

	At	Area (Thousand acres)	and acres)	ŀ	Prod	Production (Thous and tons)	ous und to	(ga	Ex	Exports (Thousand tons)	ue ind ton	
Countries	Аvетаде 1909 13	Average 1931 %5	1936 *	1937	Average Average 1909 13 1931 35	Average 1931 35	1936 *	1937 *	Average Average 1909 13 1931 35	Аvета со 1931 35	1936	1937
India	3,818	3,708	3,802	4,021	407	474	478	475	368	188	309	273
Argentana	3,708	6,174	6 533	7,023	877	1,770	1,850	1,560	677	1,667	1,484	1,773
USA	2,448	1,770	1,180	924	489	251	148	174	69			
Canada	1,035	377	468	241	308	#	48	18	183	10	10	(9)
Other countries	1,521	1,245	1,799	1 305	123	240	391	273	276	20	88	124
U S S R ‡	3 200	6,766	964.9	5,855	479	720	(a)	(a)	134			
World Total (excluding U S S R) 12,660	12,660	13 274	13,872 13,514	13,514	2,297	2,784	2,912	2,500	1,506	1,885	1,806	2,168

Source—International Review of Agraculture, Romo 'T' e Indian figures of acreage and production, excepting for the prewar average, represent the revised figures discussed in the text * The years indicated are those of harvest In Argentina the crop is harvested from November to January next year

‡ Total area for flax and linseed (a) Not available † Arca sown

APPENDIX II Acreage under Linseed in the main producing areas in India

							-										
	1036 37.	191	101	1. 18. 18. 18. 18. 18. 18. 18. 18. 18. 1	009	2,851	-	45	9 9	130	8	140		3,594(6)		4,021	
-	1935-36	-	125	1,131	650	2.764		ř.	9	130	76	900	200	3.457		3,892	
	1934-35		126 599 197	26,26	622	0 737		47	-	818	28	18	6/3	3.410		3,843	
1	1933 34		124 124	883	293	0.020	2,000	ŧ	30	128	73		611	9 901	10246	3,656	
	1932 33		125 641	888	624	100	2,779		-	108	203		620	18	1,200	3,711	-1
	1931 32		126	837	321		2,80		2	8	300		202	1	3, 70,	3.824	
	1930 31	1	116	82.00	310		2,628		9		253		381		3,000	3 506	
(Thousand acres)	1929 30		114	134	229		2,412			- î	24.2	5	390		2,802	5	,,,,,,
(Thous	1928 29		132	030 030 030	210	200	2,027		•	3 5	569	3	483		3,109	Ļ	*00°0
	1927 28	Ì	118	252	453	Oco	2,826			- 5	318	3	88		3,111	1	3,524
	1926 27	Ì	136	1,001	303	200	2,974			28	520	38	202	3	3,331		3,820
	1925 26		134	1,148	381	55	3.202			0	178	103	9	100	3,596		4,211
			BRITISH INDIA— Bengal	Bilbar (and Onessa) Rombay Central Provinces and Berar		(a)	martin Theorem Todas	TOTAL TRIBUTAL	INDIAN STATUS—	Bombry States	Central Provinces States	Notah (Rajputana)		Total Indian States	Geavn Total.	200	REVISED GRAND TOTAL

Comment Comment Total

Source — Fatumates of Area and Areld of Principal Crops in India

• Pither—540 and 550 Orissa— on each your

• The Revenor of serence has been discussed fully in the text

(a) Represents the 'mixed crop, 16, seed sown in the same field with other crops (b) Reissed figure 3.677 + The Revision of acreage has been discussed fully in the text

V.B.—Veccalar, to the lind Forcant, acrospe uniter larsed in 1997-33 a selumated as follows —Reggel 1837, Bahar 1857, Orasas 8 Enabla 107 Central Properties and Beart 1.133 Family 109 Unich Promuse 87 Blongal 109, Bombey States 6 Central Properties States 130 Historia March 17, and Konth (Exputes) 107 Total 1503 (Housing States) 150 Historia March (Exputes)

APPENDIX III

dereage under Lenseed in certain provinces and States in India

(Not included in crop forceasts)

					216									
	_	1936 37 *			⇒ eı	~	'	3				;	g :	2
		1935 36		4	* e1		4	,	į —	_	_	2	3 2	:
	3	11004 30		9		•	- 51			_	_	40	61	-
	1023			4	m -	1	00	1		_		- 23	10	_
	1932 33			67	- 1	1	9	1			_	43	22	-
9	1931 32			61	9 ~	T	6	T				46	16	
(a)	1930 31			12	₩	Ī	16	T		_		Ę		
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E	1927 28	1000 27 1027 28 1028 29 1020 30 1030 31 1031 32 1032 33 1933 34 1034 35 1033 36 1035 36 1036 37 •		21 4		;	=	-	_	_	55	14	_	
	1926 27		٤	1		2					4	12	-	
	19, 2¢		2	13		24			_		ţ,	6	-	
	1		Britist India Assam	Madras	Burna N W F P, and Almer Merwara	Total British India		Indian Spinns		Centrat I na a States	Indore	Others	-	

08	13 4 4 5 5 5 6 7	207	218
98	H 4 4 8 5 5 5 5	817	224
8	01 11 4 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	202	220
69	81 01 02 03 03 03 03 03 03 03 03 03 03 03 03 03	178	186
98	22 11 3 2 2 5	214	220
- 68	11 12 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	237	246
27	3 8 6 7 7 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	205	221
9	25 10 10 3 5 5 4 5	156	172
28	25 1 4 6 1 19 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	230	245
F	3 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	213	229
20	11 12 3 33 5 5 8	194	213
306	25 13 20 4 4 66 84	248	272
Gwellor	Rayputana Sistet— Dundi Tonk Othera Punjab Sistes United Provencew Sistes Kashmir Other Jodenn Sistes	Total Indian States	GRAND TOTAL

* 1935 36 and 1936 37 figures from the returns received from the Director General of Commercial Intelligence Seurce -- Agreellural Statistics of India

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APPENDIX IV Yeld 1 er aree of Inweed in the main producing areas in India

				e. ≅	(N lor sew)							
}	1925 20	1926 27	1027 29	1028 29	1020 30	1930 31	1931 32	1932 33	1933 34	1934 35	1036-30	1936 37
Вантян Імрия—	=	æ	£	£	a	2	ä	a	A	2	4	#
Bengal	10¢	329	247	353	373	367	350	448	434	480	300	427
Biher (and Orises)	33.3	Ŧ	313	368	366	323	311	339	327	348	310*	310*
Dombay	185	109	536	282	222	229	220	251	235	212	238	121
Central Provinces and Berar	140	108	176	130	193	197	208	184	192	198	158	168
Punjati	272	172	192	240	240	160	210	240	210	258	198	190
United Provinces	347	388	291	303	450	362	389	380	322	361	300	369
Average British India	282	280	2.4	250	320	207	209	237	TE2	296	270	278

	,						_	_	_			
Indian States-			_									
Bhopal (Central India)									242	238	238	240
Born bay States	249	224	320	373	27.1	280	224	373	373	320	232	568
Central Provinces States	138	151	179	엉	184	721	191	187	175	176	98	89
Hyderabad	201	132	£.	88	148	143	168	150	169	191	178	211
Kotah (Rajputana)	\$	118	261	4	118	248	236	217	215	196	262	238
Average Indian States	159	138	125	84	149	170	180	17.1	176	193	178	193
Average India	250	273	235	232	304	182	282	279	258	277	251	261 (a)
Revised All India Average	548	277	247	246	282	281	270	304	281	287	275	266

Source - Letimates of Area and Yield of Principal Crops in India

Orissa 249 lb

† The ravised yield per acre has been discussed in the text

(a) Revised figure 256

 $\Delta PPENDIX$ ∇ Production of Linseed in the main producing areas

				(Tho	(Thousand tons)		Frommenty areas	82				
			_	_	-	-	-		-			
	1925 26	1926 27	1927 28	1928 29	1929 30	1930 31	1931 32	1932 33	1933 34 1934 35	1934 35	1935.36	1006
												2000
	18	8	5	2	9	2	8					
	103	8	š			;	3	22	ಪ	27	22	26
		3	ő	807	101	76	26	97	26	83	76*	\$53
	3	00	23	15	13	14	14	77	2	2	-	:
Series and Berar	23	75	73	54	65					;	27	co
		,		_	-	?	6	8	80	88	08	82
	•		8	63	es	67	m	64				
	- 63	49	22	66				,	,	ro	61	m
(8)	- 5	_	_	?	·	=	99	33	31	33	75	\$
1	601	114	82	92	101	104	102				5	2
	374	l	1	t	+	+	1		8	001	113	100
	1	5	321	304	354	348	374	300	328	500	1	1
				ļ	1	1	-	_	-	700	333	354

				-	-	-	-	_			_		
Indian States-							:	1	9	4	10	10	۵
Bhopal (Central India)				:		:		_	_	-	-	-	-
Bombay States	:	-	-	-	-	€	-			-			4
Central Provinces States		6	9	00	4	*	100	œ	a	2	3	•	• :
:	-;	16	13	ä	=	16	91	81	18	28	37	ee	‡
Kotah (Rajputana)	-;	84	7	7	61	69	6	01	6	-	œ	=	2
	_						1	Ì	Ì				
Total Indian States	 -	88	. 8	7.7	18	26	53	3	37	48	83	82	3
GRAND TOTAL	_!	402	406	348	322	380	377	416	406	376	420	388	418 (d)
REVISED GRAND TOTAL!		466	473	422	100	442	440	476	504	468	497	478	475

A B-According to the Fund Torscast, production of linesof from 1947-38 crop is estimated as follows --Bengal 27, Lithar 81, Olissa 1, Bombay 9, Central Provinces and Berar 103, Punjab 3, United Provinces 157, Bhopal 7, Bombay States J. Central Provinces States 8, (d) Revised figure 420 (a) Represents maxed evop, ve seed sown in the same field with other evops. (b) 800 tens (c) Not available (d) Revised fig. + The revision of production has been (nily discussed in the text Source _Listimates of Area and Yreld of Pinotpal Grops in India * Including Orssa s share of 1 ton Hyderabad 41, and Kotah (Rajputana) 13 Total 457 (thousand tons)

APPENDIX VI

Production of Lanseed in certain provinces and States of India (Not included in the crop forecasts)

	Average area for 10 years (thousand acres)	Approxi- mate yield per sere (lb)	Approxi- mate produc tion (tons).
BRITISH INDIA-	}		
Assam	8	492	1,760
Madras .	5	300	670
Ajmer Merwara, Burma and North West Fron tier Provinces	1	267*	120
INDIAN STATES-	1	}	}
Central India States-	1	}	1
Barwam, Indore, Nagod, Natsingarh, Orcha Rajgarh, Dhar, Datia, Bijawar, Ajaigarh, Chattarpur, Rewah, Charkhari, Dewas Jumor, Dewas Semor, Jaora, Sailana	245	270	29,530
Gwahor .	70	370	13,050
Raypulana States-	l	{	}
Bundi, Jaipur Jhalawar, Tonk, Marwar, Par tabgarh and Udaipur	57	220	5,600
Punjab States-	}	}	}
Kapurthala, Patiala, Kalsia, Bahawalpur	} 3	287	389
United Provinces States	1	}	}
Benares, Rampur	5	360	800
Kashmir	28	410	5,130
Myeore and Baroda	. 1	267	120
Total	432	\\	67,160

^{*} All India Average.

Source -Agricultural Statistics of India and data collected during the Survey.

APPENDIX VII.

Number of grains per gramme and oil content in commercial samples of Linseed collected from different parts of India

		r of grau ramme	ns per	Oil m	cleaned s	eed
-	Maxi mum	Mini mam	Average	Maxi mum ^o o	Mini mum ^o o	Average 00
Assam	208	177	190	I	ļ	39 21
	229	177	201	41 22	35 09	39 45
Bengal	273	131	190	43 91	38 19	40 57
Bihar (North)	231	114	155	43 4-	38 84	41 56
Bihar (South) and Orassa	159	119	134	44 63	40 66	42 87
Bombay Presidency	161	96	116	4- 43	41 34	44 62
Central India States	177	108	164	48 43	39 Sa	42 76
Central Provinces (East)	169	106	130	45 92	40 09	43 13
Central Provinces (Central) Central Provinces (West) and Berar	215	1114	122	41 96	39 81	43 16
Hyderabad	144	120	129	44 71	41 02	42 93
Kashmir	241	203	223	42 76	38 33	40 90
Madras	171	133	104		1	40 7
Mysore	193	15	, 170	, '		
Punjab	330	15	23	41.7	39 90	1
Rajputana	131		- 110	44.4	42 69	1
United Provinces (North-east			3 15	3 43 4	40 98	
United Provinces (Central)	223		g 1ə	43 2		i
United Provinces (South	1		11			
At Bombay Port	17	1 1	g- 13	•		1
At Calcutta Port	-0	6 1	30 17			
From Shipments for exper from Bombay	ert 16	32 1	24 15	36 43	18 4" 6	43 (

244 0

8 6

APPENDIX VIII

America monthly despective and arrivals of Linesed at certain important centres of production and consumment APPENDIX IX

7.77	rage men	in the	patones	מאמ מוזי	to Sano	Dascus	ana cer en	n import	tant cent	res of P	average monthly despatches and arrivals of Linseed at certain important centres of production and consumption	and c	neumbu	ŧ
				Dea	Despatchos						Arrivals.	als.		}
Month	United Provinces (3 stations- Average of 2 years)	nte l Provin ** (3 stations Average of 2 years)	Bihar and Oriss {10 stations— Average of 23 rols)	Bihar and Orissa† (10 stations— Average of 2) rais)	Bengal‡ (2 stations—Average of 2 years)	gal‡ lons— ge of us)	Bombay Press dency§ (7 sta- tions—Avera of 2 years)	tombay Presioncy§ (7 sta tions—Average of 2 years)	Central Provin ceal (3 markets Average of 5 years)	Provin narkets— ge of zrs)	Calcutte pukar Aver Ø 5c	Calcutta (Kanta pukar sheds— Average of 5 years)	Bombay Port (Average of 5 years)	Port
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%
January March April April June June June Septemier Septemier November Nevember	122 175 150 474 977 471 418 111 121	01 # 25 52 85 8 52 1- 01 20 00 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1 063 807 1 168 2 033 3 504 3 504 1 526 1 526 1 409 1 083 9 46	04010000000000000000000000000000000000	24 2 3 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0 2000 0 0 0 0	216 498 1 014 1 021 815 300 157 1 157 3 106 3 104 273	4003520-800-80 -4040-4000-0	20 20 20 20 20 20 20 20 20 20 20 20 20 2	00000000000000000000000000000000000000	6 102 5 123 7 173 14 815 15 28 15 48 12 45 12 45 10 86 10 660	485513131365 284015885-55	3 308 4 661 14 040 15 012 20 730 8 405 0 023 6 251 11 146 5 6 248 5 6 248 5 6 248 5 772 4 231	8444000000484 87460000000000
Torac	4 373	92	17 469	902	7 036	700	6 267	892	12 567	100	134 264	100	164 927	100

*Rest Chryson Oes
 *Charles Chryson Oes
 *Charles Charles
 *Charles
 *Charles</li

APPENDIX X

Exports of Linseed from India (British Indian P. 198) .

(Thousand ton)

2 1	188 17	,	1	
1936 3	218	1	243 141 9 : 7	•
1037 36 1936 37	90 10	3	8 4 5	N
1032 33 1933 34 1934 35	104	132	2 1 1 1 4 1 4	,
1933 34	176	188	10 4 4 6 8 9 9	
1032 33	14	24	C 2 2	_
1931 32	100	22	10 10	
1530 31	11 E8	89	13 23 0	
1929 30	83 29	102	13	
1928 29	188	#	. at.	
1927 28	20 20	12	18 6 4	
1925 26 1926 27	49	99	13 5 17 61	
1925 26	111	132	17 23 -	
,	United Kingdom Australia Others	Total British Empire	Gernany Netherlands Balgrum France Spain	

288

APPENDIX A1

Acreage, production, exports and quantities of Linseed relained in India

1916-17 3 333 1917 18 3 564 1918 19	Thou sand tons 3 326 352 482 572 347 353 425 164 298	Thorsal tons	2 2 2 2 4 4 5 3	5 328 354 86 75 48	Tho san ton 6	nd 3 s s t t 566 6 6 6 1 1 9 9	7 38 38 55 16 59	retaine to preduction 8 + 10 8 11 4 2 8
acres acres	3 326 352 482 572 347 353 425 164	tons 4 3 1 1 1	22 : 22 : 34 : 4 : 5 : 3 : 3 : 3 :	328 354 86 75	36 31 43 555	d s t	and ons 7 —38 38 55	8 + 10 8 11 4 2 8
1901 02 2 884 1902 03 3 045 1903 04 3 213 1904 05 4 201 1905 06 4 394 1906 07 3 279 1907 08 3 743 1908 09 2 099 1909 10 2 099 1910 11 3 188 1911 12 3 742 1912 13 5 038 1911 15 3 031 1915 16 3 320 1916 17 3 333 1917 18 3 764	326 352 482 572 347 353 425	3 1 1 1	2 : 2 : 4 : 5 : 3 : 3 :	328 354 86 75	6 36 31 43 55	66 6 1	7 —38 38 55 16	8 + 10 8 11 4 2 8
1902 03 3 045 1903 04 3 213 1904 05 4 201 1905 06 4 394 1906 07 3 279 1907 08 3 743 1908 09 2 099 1909 10 2 997 1910 11 3 188 1911 12 3 742 1912 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 320 1916 17 3 333 1917 18 3 764	352 482 572 347 353 425	3 1 1 1	2 : 2 : 2 : 4 : 5 : 3 : 3 : 3 :	328 354 86 75	36 31 43 55	6	38 38 55 16	+ 10 8 11 4 2 8
1902 03 3 3 045 1903 04 3 213 1904 05 4 201 1905 06 4 394 1906 07 3 279 1907 08 3 743 1908 09 2 099 1909 10 2 997 1910 11 3 188 1911 12 3 742 1912 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 320 1916 17 3 333 1917 18 3 764	352 482 572 347 353 425	3 1 1	2 3 4 5 3 3 3 3 3 3	854 86 75	31 43 55	6	38 55 16	10 8 11 4 2 8
1903 04 3 213 1904 05 4 201 1905 06 4 304 1906 07 3 279 1907 08 3 743 1908 09 2 099 1909 10 2 997 1910 11 3 188 1911 12 3 742 1912 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 325 1916 17 3 333 1917 18 3 764	482 572 347 353 425 164	3 1 1	5 3 3 3 3 3	86 75 18	43 55	9	55 16	11 4 2 8
1904 05 4 201 1905 06 4 394 1906 07 3 279 1907 08 3 743 1908 09 2 099 1909 10 2 997 1910 11 3 188 1911 12 3 742 1912 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 325 1916-17 3 333 1917 18 3 764	572 347 353 425 164	3 1 1	3.	75 18	55	9	16	11 4 2 8
1905 06 4 394 1906 07 3 279 1907 08 3 743 1908 09 2 099 1909 10 2 997 1910 11 3 188 1911 12 3 742 1912 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 320 1916-17 3 333 1917 18 3 764 1918 19	347 353 425 164	1	3.	18		1	16	2 8
1906 07 3 279 1907 08 3 743 1908 09 2 099 1909 10 2 997 1910 11 3 188 1911 12 3 742 1912 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 320 1916 17 3 333 1917 18 3 764	353 425 164	1	35		289		- 1	
1907 08 3 743 1908 09 2 999 1909 10 2 997 1910 11 3 188 1911 12 3 742 1912 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 320 1916-17 3 333 1917 18 3 764 1918 19	425 164	1	1	54				
1908 09 2 099 1909 10 2 997 1910 11 3 188 1911 12 3 742 1910 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 325 1916 17 3 333 1917 18 3 564	164		49		219	Ι.	135	17 0
1909 10 2 997 1910 11 3 188 1911 12 3 742 1912 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 320 1916-17 3 333 1917 18 3 764 1918 19		1		6	310	1 '		38 2
1910 11 3 188 1911 12 3 742 1912 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 320 1916-17 3 333 1917 18 3 564 1918 19	298		16	5	160	'	16	27 3
1911 12 3 742 1912 13 5 038 1913 14 4 125 1914 15 3 031 1915 16 3 320 1916-17 3 333 1917 18 3 764 1918 19		2	30			1	5	3 0
1912 13	428	9	43		234	'	66	22 1
1913 14 4 1.25 1914 15 3 031 1915 16 3 320 1916-17 3 333 1917 18 3 564 918 19	571	11			371		56	15 4
1914 15 3 031 1915 16 3 320 1916-17 3 333 1917 18 3 564 918 19	645	8	582		522	(10	10 5
1915 16 3 325 1916-17 3 333 1917 18 3 564	542	- 1	653	1	354	29	9	46 4
1916-17 3 333 1917 18 3 564 1918 19 2 702	386	7	549		414	13	5	24 9
1916-17 3 333 1917 18 3 564 918 19	397	8	394	1	322	73	2	18 7
917 18 3 564	476	4	401		193	208	1.	52 4
918 19	- 1	8	484		394	90	1	18 9
	526	8	534	1	146	388	1 ,	3 7
919 20	515	9	524		291	233	1 4	5 2
920 21	235	6	241		252	-11	Ι.	+
921 22	19	7	426	1	88	238	56	8
922 23	70 Í	6	276	1	74	102	37	7
23 24 3 382 5	1		442		74	168	38	

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APPENDIX AI-contd

Year	Acreage	Produc tion	Imports	Total supplies	Export	Quan tity retained in India	Percent- age oi quan tity retained
	Thou sand acres	Thou sand tons	Thou sand tons		Thou sand tons	Thou sand tons	to pro duction
1	2	3	4	5	6	7	8
1924 25	3,724	463	5	468	371	97	21 0
1925 26	3 695	501	14	515	308	207	41 3
1926 27	4,211	466	21	487	192	295	63 3
1927 28	3,820	473	25	498	223	275	58 1
1928 29	3,824	422	15	437	157	280	66 4
1929 30	3,654	401	21	422	248	174	43 4
1939-31	3 510	442	18	460	257	203	45 9
1931 32	3,506	440	15	455	120	335	76 1
1932 33	3,824	476	16	492	72	1 420	88 2
1933 34	3,711	504	16	520	383	† 137	27 2
1934 35	3 656	458	10	468	240	1 228	49 8
1935-36	3,843	492	14	506	165	341	69 3
1936 37	3,895	478	3 13	491	296	195	40 8
1937-38	4,02	1 47	5 1	1 436	226	260	54 7

hores -(a) As the production from the crop of a particular year is exported in the following year, the statistics of area and production mentioned against each year are those of the preceding year's erop in order to correlate them with export figures

B The data regarding area and production upto 1925 26 have been abstracted from Estimates of Area and Yield of Principal Props and refer only to area for much forecasts are prepared and not to those lineared from the data from 1976 27 when the production of the total Induced Cop The data from the production of the total Induced Cop The data from the production of the total Induced Cop The data from the Production of the total Induced Cop The Cop The Cop The Induced Cop T figures for different years are not strictly comparable owing to addition to reporting areas from time to time

⁽c) Fxport figures are taken from Seaborne Trade of British India" The

quantities retained include seed + Exports exceeded the previous years production and include quantities exported from earry overs

[†] Including exports from Mormugao (Portuguese India)

[†] Figures from 1900 01 to 1909 10 represent imports from Land Frontiers into U P only and from 1921 22 to 1924 25 1070 Elbar only For other years the figures are total of figures are totals of imports into U P and Bibar

APPENDIX XII

Imports and exports of Linseed (by rail and river) into and from different provinces and States of India during 1919 20 and 1934-35 to 1936 37 *

(Thousand tons)

	Import	s anto	Expor	ts from
Pr rence and State	1919 20	Average 1934 35 to 1936 37	1919 20	Average 1934-35 to 1936-37
Assam	(a)	(a)	2 4	16
Bengai	132 8	121 9	01	0 1
Bibar (and OrLsa)	0 3	2 9	91 3	75 2
Bomb	61 9	112 6	2.2	(a)
Central India	(a)	0.1	16 8	24 0
Central Provinces and Bersr	7.6	11	13 2	22 3
Hyderabad	(a)	(a)	17 9	41 9
Kashour				
Madras	(a)	7 6	0.8	01
Mysore	(a)	{a}	(a)	(a)
Punjab	0.4	0.2	0 4	(a)
Rajputana	(a)	(a)	6 4	13 3
Sind and British Baluchistan	76	(a)	(a)	(a)
Uinted Provinces	0 9	10	55 8	68 9

^{*} Adapted from Accounts relating to the Inland (Rail and River borne) Trade of India

⁽a) Less than 100 tons

APPINDIX XIII Trade (rail and neer borne) in Linsted between different provinces a d States of India (Average 1934-35 to 1936-37) *	ced betwee	en differ	APPF rent prov (Thou	APPINDIX XIII at provinces a d St (Thousand tons)	TIII I States o	of India	(Avera	je 1934 .	35 to 19	36 37)	
				Im	Imported into	2					
Bengal		Bibar and Orissa	Bombay	Central	Central Pro vmces	Hyder	Madras	Punjab	Raj p 1tana	United Pro Tinces	Total
-	1 0										<u>°</u>
	_	0.1	_	_							0 1
74 3	_						0			0.4	75
								_			9
0	65		22 4	_	0.7					90	24 0
0	~	0.1	15 9		_		0 9				22
			40 4		0.4		Ξ				41 9
		_	0 1							_	10
	_							_			(0)
			13.2	0							2
45	45 4	61	20 6					0			689
121	121 9	8 8	112 6	0.1	=		7 6	0 2		10	247 4

*Adapted from Accounts relating to the Inland (Rail and R ver borne) Trade of India

APPENDIX XIV.

Average monthly wholesald prices per maund of Bold and Small Inseed at Bombay.

					1			Ē	% ⇒ elv	rofin	(Basis 4 % refraction mutual.)	fuol.)												
			281	8			1033.71		-	1034 35,		 	1938 36	١)	=	1938 37	4			1037-39.	[1
Month		=	Ilaki	ő	73	Boll		Small	Bold.		Small	Bold		Smal)		Bold		Small		e L	Pold	É	Small.	ı
		ā	1 4	Rs A		P Rg. 4 P	F.	Be, 4 P	2	A	F 4.	ž ž	1 4	- E	-	Re. A	1 2	2	i	₹ 4	5	<u>, </u>	1 7	1 2
April		*	5	3 15	01 9	3 13	3	3 10 11	4 10	0	4 7 11	1 13	10	4.13	*	4		10	æ	5 14	4	*	22	ų
May		*	~	3.15	20	4 5	*	0.11	e1 20	90	4 15 5	22	0	5.3	•	6		20	-	6	20		21.9	es
June		3 15	6 2	3 10	0 11	4 8 11		4 6 4	60	-	8 1 1	11.3	=	10		10	-	20	2	5 12	20		11 0	_
July	•		7	3.18	8	0 2	-	8 14 8	4 15	-	4 14 7	 21	9	4 10 11	=	8 12 1	=	8	-			5 13	5	. 61
Angust	:	<u>.</u>	9	*	20	4 13	4	21 8	61	æ	0 1 11	4 12	10	Ę	•	8		23	0	5 13	n	10	2 13	2
September	:	4 13	2 5	*	0 20	4 11		4 10 7	4 12	63	4 11 6	7 7	•	13	~	10 10		10	150		0		7. 5	-
October	:	*	8 10	*	3 0	*	*	3 0	4		8 1	8	-	15	•	20		-	6	5 15				
November	:	*	8 0	4	0	4	-	6 11	4		4 6 0	4	œ	1	61			, e	*	8				
Desember	:	*	7 6	*	8	4 5	-	-2 *	4 11	-	4 10 8		**	2	-	•			=	5	-			
January	•	*	9	*	4 2	4 3	*	2 4	61		8 0 0	10	_	100						71.4		_ <		
February	:	*	4 6	4	11 0	50	~		4 14	-	4 12 4				-					: :				٠.
March .	:	3 15	9 2	3 12	F-	4	-	4 7	4	6		*			, ,	_								- 5
Annual Average	; g,	•	2 10	3	0 10	÷	-	5 7	El 3	9	4 12 3	Ŧ	=	-										×
			١																					

Adapted from Bombay Chambor of Commerce quotations.

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APPENDIX XV

Average monthly wholesale prices per maund of Bold and Small Innseed a Calcutta.

(Bas a 5% refract on non mutual)

1	1932	1932 33	1933-34	134	193	1934 35	1935 36	36	1938-37	37	183	193" 38	}
pronte	Bold	Small	Bold	Small	Bold	Small	Bold	Small	Bold	Small.	Bold.	Small	۱.,
					-							1	ł
	Ra. A. y.	Rs A P	Rs A P	Ns A P	Ra A P	Re A P	Re A P	Ba A P	Rs. A P	Rs A	Re. A. P.	2	
l ref	3 14 4	3 12 10	3 11 2	3 20 3	7 8	4 7 9	2 4				,	Ŀ	
fuy	3 20 4	6	•	-		- ;			4	9	7 7 8 -	9	17
lune	3 10 6			-		11 91 7	6 13 0	9	0 0	61	6 1 1	•	-
April 1		~	or or	8 *-	72 52 53		£ 11 3	4 10 3	2 3	6 1 3	5 13 8	5 12	×
	1	° ≈	4 14 4	4 13 10	4 13 3	4 12 9	4 11 3	4 10 3	5 8 7	7 3	9	8	~
Sara N	9 10 •	- 10	4 9 6	0 0	5 1 7	- 9	7 30 33	11 01 7	9				, ,
September	* 1.	4 0 8	9	-		. ;			2	2	23	9	=
October	4 5 2		: :		\$ 77 P	1 1 1	4 13 s	4 11 11	5 10 6	6 9 10	01 02 9	6 1	æ
November	4 3 0	_	-	-	4 0 5	8 8	0 01 10	0 1 9	5 8 4	5 7 4	61 61	9	69
December	4 6 30			φ φ	4 5 1	4 3 11	0 2	4 15 0	8 23	7 3	5 13 9	6 12	=
January	9		9 .		4 11 8	4 10 6	4 15 6	4 14 6	\$ 01°	0 8 9	5 12 2	6 11	
February	7	•	-		0 0	4 14 3	9 9	5 4 6	5 13 6	6 12 11	5 14 10	5 13	9
March	3 12 8	• •	9		4.13.11	4 12 2	23	2 2	\$ 01.9	5 10 2	5 12 1	5 11	~
Annual Average	7		•	2	e3 e3	475	3 3	10 24	5 13 11	5 13 5	5 8 10	80	*
		or o	50 4	w 40	4 32 8	4 11 8	4 15 3	4 14 1	5 8 10	8 9	5 16 2	9 19	9

*Adapted from Bongal Chamber of Commerce quotations

APPENDIX XVI

Average monthly c 1 f prices of Calcutta Louseed in London (Shipment during the eurtrat or following month)

			1	-	(Per ton.)	- do		1				
Month	1026 27	1927 28	1928 2n	1929 30	183 31	1037 80	1932 33	1033 34	1934 35	1935 36	1036 37	1037 38
	2 4	**************************************	, s	. 4	, k	\$ 8	p + 3	9 . 3	9 9	A 0 A	ž .	. 4
Apr ?	16 17 8	17 16 0	18 2 6	18 0 0	10 6 0	10 12 6	9 13 9	0 12 6	11 6 3	n 10 o	12 12 6	14 18 3
May	16 15 0	18 10 0	18 2 8	17 12 6	18 12 6	10 0	0 0 0	0 81 0	12 10 0	11 13 9	12 7 6	14 15 0
June	17 18 9	0 OI 81	1-16 0	17 8 0	18 2 6	10 2 6	8 9 6	11 10 0	12 10 0	11 11 3	12 12 6	14 7 0
fuly	19 12 6	17 16 3	17 16 3	10 12 6	16 12 6	10 13 0	J 12 6	12 3 0	11 18 9	11 12 6	13 10 0	15 1 0
August	18 12 6	17 12 6	17 13 9	20 12 6	17 13 9	10, 0	10 17 9	0 01 11	22 11 3	11 13 9	14 2 6	15 4 0
deptember	17 2 6	17 7 6	17 15 0	23 12 6	15 8 9	11 0 0	11 6 3	11 7 6	11 13 9	12 1 3	13 12 8	15 4 0
October	17 2 6	17 6 0	18 13 9	23 15 0	14 6 0	11 0 0	10 17 6	10 15 0	8 11	12 12 0	13 6 0	15 • 3
November	17 7 8	17 2 6	19 5 0	22 17 6	10 16 3	n 5 0	10 12 6	11 3 3	10 17 6	12 6 3	13 10 0	14 16 3
Derember	17 8 9	17 2 6	19 15 0	23 15 0	12 13 9	11 0 0	11 11	11 0 0	11 12 6	12 12 6	14 5 0	18 1 3
January	17 7 6	17 10 0	19 0 0	20 18 9	11 15 0	11 3 9	11 0 0	11 13	12 1 3	13 1 3	14 7 0	15 0 9
February	18 2 6	17 10 0	19 6 3	19 2 6	11 10 0	11 11 3	10 8 0	11 2 6	11 15 0	12 15 0	13 19 0	14 10 3
March	17 12 6	37 35 0	18 12 6	18 6 3	9 . 17	10 17 6	9 15 0	10 18 9	11 2 6	12 16 3	14 7 6	13 15 3
Average	11 11 4	17 13 0	18 9 10	20 7 6	16 0 3	10 16 6	10 5 8	11 2 0	11 16 8	13 3 10	13 10 9	14 16 10

Sowes --Amual Beviews of the Otherst O Lead Oil Cale Markets p. 51 st ed by Teark Febr & Co. London Te ces for 1977 39 are based on weekly only expressed from the High Communication of Solids. London

APPENDIX XVII
Abrage monthly 0 1 f prices of Plate Innseed in London
(Shipment during the current or following month)

					4	(Let 100)						
Month.	1926-27	Na27 28	1828 29	1929-30	1830.31	1931.39	10%	2 000	100			
		1					20 4 20 4	#0 ccu*	1804 30	De dent	1830 37	1937.38
	2 .	*	70 84	9	•	, ,]	1		1
lpet!	14 12 €	15 3 9	15 17 6	16 17 6	18 1	-	, ;		. :	. :	. :	•
lay	14 13 9	8 8 9	20	9		: :	: :		2	2		o 6 7
June	15 12 6		:	1	3		2		10 17 6	8	10 15 0	13 4 6
ali e			3	9 91 91	10 18	0 018 8	7 12 8	30 30 0	11 0 0	9	0 0 11	12 19 9
	91 91	0 92	15 15 0	18 10 0	150	0 8 8 9	8 0 0	11 7 6	10 16 3	9 2 6	11 15 0	
Angret	16 10 0	10 0	15 6 3	19 11 3	15 12	9	2		:			,
September	18 10 0	28 0 0	35 7 8	8	٠	:	2	>	=	20	0 0 21	0 •
October	16 12 6	2			6	-	0	10 17 6	10 12 6	2	11 15 0	13 5 9
November			9		12	6 8 83 9	8 16 3	0 17 6	30 6 3	10 11 3	11 6 3	13 12 6
Веоещрег	2 د	10	18 16	8 8 8	10 10	0 9 3 9	8 16 3	9 13 9	9 2 6	6 81 6	11 5 0	12 13 6
Jacoary		9 9	12	2	0	9 . 6	8 17 6	9 55 0	8 6	10 13 9	11 16 3	12 10 3
February	- 2	9 :	10			8 8 16 0	8 15 0	9 6	9 11 3	11 2 6	11 19 6	12 16 0
March		9 :	=	17 7 6	0 8	8 16 3	8 7 8	8 6	9 7 6	11 0 0	11 13 9	12 10 6
Ave non	ءِ إ ه	2		17 0 0	8	3 8 2 6	8 6 3	9 8	9 6	0 0 11	1	
		15 13 10	15 15 0	18 13 8	12 17	9 11 9	8 8 2	9 17 10	10 %	9	To the	٠ :
		ļ	-			_	_			1	;	12 12

Pirce for 1837 38 are based on weekly cables recovered from the High Commissioner for India. London. Source - Annual Berrew of the O lered, O land Oil Cake Markets published by Frank Febr & Co London.

APPENDIX VVIII
Assenge monthly premiums for Calcutta on or Plate I inseed in London

(Fide Appendices AVI and XVII)

			1	2000	1 100	1091 90	1000 00	1002 04	2004	1005 36	1036.37	1027.38
Month	1926 27	1927 28	1928-201	1 1 23 3t	1430 31	1991 92	1892 00	1000 01	ne sens	1000 00	1000	
	2 . 3	2 4	9 0 3	£ 6 £	* 9 9	2 3 4	* *		₽ 4 2	2 5 3	73 %	70 4 4
April	2 0	, 11 3	0 20 20	69 63	1 3 0	1 15 0	1 16 3	3 9	1113	2 0 0	1 13 9	1 15 6
May	2 1 3	3	1 16 3	1 16 3	1 2 6	1 16 3	111 3	8 8 1	1 12 6	2 5 0	1 12 6	1 10 6
June	2 6 3	2 1 3	0 0	1 10 0	1 3 9	1 12 6	1 13 9	1 0 0	1 10 0	2 6 0	1 12 6	1 7 3
July	117 6	1 16 3	e	1 2 6	1 12 6	2 6 3	1 12 6	0 16 3	3 6	2 6 0	1 15 0	1.18 0
August	8 8	1 12 6	2 7 8	1 1 3	2 1 3	0 0 2	5) 61 61	0 01 0	1 1 3	2 5 0	1 17 8	200
September	1 12 6	1 7 6	2 7 8	0 3 9	0 0 3	9 0 0	2 1 3	0 10 0	1 1 3	0 0 2	1 17 6	1 18 3
October	1 10 0	1 12 6	2 13 9	0 12 0	2 7 6	2 6 3	2 1 3	0 17 6	1 2 6	2 1 3	1 18 9	1 16 9
November	1 7 6	1 15 0	6 8 8 .	1 18 9	9 6	2 1 3	1 16 3	1 10 0	1 15 0	276	2 5 0	a 61 61
Desember	1 15 0	1 13 9	0 9 4	4 13 9	3 13 9	1 17 6	2 3 9	1 16 0	63 63	1 18 9	2 8 9	2 11 0
January	1 3 9	0 20	8 8	3 1 3	3 7 6	8 8	2 5 0	1 15 0	2 10 0	1 18 9	2 7 6	a 4
February	1 10 0	2 7 6	3 7 6	1 15 0	2 10 0	2 15 0	117 6	1 13 9	2 7 6	1 15 0	2 5 3	1 19 9
March	2 8 9	2 6 3	2 16 3	1 6 3	2 1 3	2 35 0	189	1 10 0	1 17 6	1.16.3	200	189
Average	8 91 1	1 19 2	2 14 10	1 13 10	2 2 6	2 4 9	1 17 6	1 4 2	11211	2 1 5	1 19 6	1 17 9
Partentage of premium to Plate price,	Ħ	ដ	17	a	91	શ	នុ	22	91	ន	11	22

APPENDIX XIX

Numbe	ra for	casions	on who	Number of occasions on which the weekly clossed "Interes" pries suit a premium (+) or discount (—) as com- pared suth "ready" pries at Caloutin	pare	d unth	future" "ready	s" pric	kly closng "futures" price was at a p pared with "ready" prices at Calcutta	it a pr loutta	emiums	£	discon	out (a & C(-tu
	183	1831 32	28	1632 33	1033 34	35	1934	1034 36	1935 38	336	1936	1936 37	1881	1937 38	Month for seven	Monthly total for seven seasons.
Month	May Deli very	Dept. Delt very	May D. h very	Sept Deli very	May Deli verv	Sept Doli vety	May Deli very	Sept Doli very	May Deli very	Sept. Deli	May Deli very	Sept. Deb	May Dole very	Sept Deli very	May Dou	Sept Den vory
	+	+	+	+		+	+	+	+	1 +	+	+	+	+	1 +	1 +
April	•	•	6 9	0 4	-	9	63	0	6.5 6.9	•	4	0	0	9	21 8	0 83
May	4	8	61	9	3 0	0	•	0	60	•	0	9	61	•	83	29
June		•		•		0	7 0	0 9		6	0	0 +		•	0	83
July	61	•	•	20	0	0 4	e2 e1	0	0	0	0	0 *	0	0	12 13	36
Angust	8	0 9	*	0 4	0	3 1	0	0	0 9	-	0	7	0	9	18 13	25
Schlember	3	•	•	3 0	0 0	0 0	0	0	0	0	9	0 7	9		16 13	F 15
Octol er	80		9	_	2 8		0				0	_	8		14 13	
Navember	•		•	_	0		8	_	4		0	_	0		16 10	
December	•	_	2	_	0		7		0 \$	•	0	_	6		. 41	
January	2 0		•				9		4		•		~		6 81	
Pobruary	•		•	_	ñ		-		5		4		0	_		
March	٠		٠	•	**	3 0			0		0			_	_	,
Annual Total	45.	- -	3	1	8	- 21	19 91	23	34 10	22 6	6 31	25 1	88	22	1 184 116	
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APPENDIX XX

								298	\$								
	ared		Monthly total	Sopk	7 A S	!	32 0	30	30 1	23	20 3			0	, 6	24 0	1
	com a	•	Month	N N	Total		2 2	1 1	15 10	16 13	20 7	33 1	28 7		91	61	272 60 90
	(_ 8		38	Sept	46.7	+	0 0 # 10	3 0	0 9	3.0	0 2		S	- 6	0 27	-0	i
	scount		1937 38	May	Tory	+	0 0	0 8	e) 6)	- •	es .	-		4		7	22 21 34
	or du		37	P. P. P.	very	+ .	9 9	0			0		_	•		0	•
	+) un	-	1936 37	May	Acr.	1 0	-	8 .	•				-	-			2 E 13
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	as at a t Bomb		1935 36	May	1	10	0 0	_	_			0	•		0 0		_
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APPENDIX XX	"cady"	1	1834 30	May Deli very	1	0 ¢	0 0	•	0 6	67	0	•	0	, ,	•	39 16 31	-
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	winch	- Si	:	Page 1	1	٠, ۵	,							-	0 -		
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,0000	of occurs	193	May	Tel.	+	61 61	0 7		~	0		0 •	0 [0 0	<u> </u>	-	
Number	on wheel the weekly closing a future, price was at a premium (+) or discount () is compared with 'ready, prices at Bombay.		Month			April	Jung	Angnet	September	October	November	December	February	March	Annual Total 3		

APPENDIX XXI.

Specimen Agreement to secure a Cash Credit on Goods deposited

THE • • BANK LIMITED

No -

Amount Rs————	
Name	og
at the request of Messrs——————————————————————————————————	k

at the request of Messrs (herenafter called "the Borrowers") opened or agreed to open in the Books of the Bank at——a Cash Credit Account to the extent of Rs—with the borrowers to remain in force for a period of—mouths from the day of——193 , and to be secured by goods to be pledged with the Bank

It is hereby agreed between the Bank and the Borrowers (the borrowers agreeing jointly and severally) as follows —

Ist—That the goods and merchandsse mentioned in the Schidus, nexulo which have been already deposited and the goods and merchandsse which shall be beremafter deposited with the Bank under this agreement (hereinafter called "the Securities") shall remain and be placed in the exclusive posses son and under the seclusive control of the Bank and in such a manner that such possession and control shall be apparent and indisputable. Provided that the Bank shall not be responsible for the loss, destruction, or deteriors ton of the goods deposited by any means

4th — That all securities as aforesaid shall be insured against the fire rasks by the Borrowers in some Insurance Office approved by the Bank to the full extent of the value of such Securities, that the fire police shall either be taken out in the name of the Bank or be assigned to the Bank Should the Borrowers fail to insure, the Bank shall be at liberty to effect such insurance at the expense of the Borrowers.

5th.—That a margin of——per cent at least to be fixed by the Bank from time to time in favour of the Banl, shall be above manulamed by the Borrowers between the sum (including interest and other customary charges) Borrowers between the sum (including interest and other customary charges) open market value of the Securities either the deposit of further Security to be approved by the Bank, or by Casi, branch the Bank of the Securities becomes; immediately on the market value for the time bang of the securities becoming less distely on the market value for the time bang of the securities becoming less distely on the fixed and that in default of provi on of such margin the whole margin to be fixed and that in default of provi on of such margin the whole amount due to the Bank on the said dash Credit account shall be immediately paid by the Borrowers if the Bank so requires

6th—That the interest at the rate of———per cent per annum shall be calculated on the daily balance due to the Bank of the said Cash Credit account

Th—That on the expiration of the said period of—months from the—day of—193 the Borrowers shall pay to the 3-uk the barnewithin the lumi bereinbefore mentioned, then omistanding and own to the Bank on the said Cash Credit Account inclusive of interest at the rate above mentioned to the date of payment.

- 6th.—That if when called upon by the Bank to maintun such margin as aforesand the Borroners shalf fail to do so, such balance of principal and in terest monies as may be then due to the Bank, it shall be lawful for the Bank forthwith, or at any time thereafter and without any notice to the Borrowers to sell or otherwise dispose of all or any of the Securities and to apply the net proceeds of such vale towards the injundation of principal and interest monies due to the bank, together with all charges to be incurred by the Bank
- 9th —That if the net sum realised by such sale be insufficient to cover the amount so tound due, the Borrowers promise and agree forthwith on production to them of the account so to be prepared and signed as aforesaid, to pay any further balance win h may appear to be due by the Borrowers thereon
- 10th —Provided also that nothing herein contained shall be deemed to negative quild's or other view prejudentils affect the right of the Bank to recover from all or any of the parties, including the Borrowers lable on all or any of the Bills of Exchange, Drafts, Cheques, Promessory Aotes or Bonds which may at any time be held by the Bank & Security or part Security against the said Cash Credit Account
- Ith—And it is hereby agreed that in the event of there being a surplus are table tire payment of all such principal and interest monies and all charges and expenses of the net proceeds of such sale of Security as aforesaid, it shall be lawful for the Bank to apply the said surplus as far as the same shall extend no trouwds payment or highuidation of any and all other monies which shall or may be due from the Borrowers or any one or more of them to the Butk by way of Loans

14th — That it e Borrowers shall bear all expenses meurred by the Bank in this councition such as the pay of Godownkeepers and Choukidars and the trarelling allowances of In pector, Vinagers Godownkeepers and other officers and all such expenses, shall be debited to the Borrowers' account in divcourse

Schedule of Securities referred to in the foregoing Agreement

APPENDIX XXII

Approximate share of different agencies in the assembling of Linseed in the main producing areas of India

				101					
		Average for India	%	07	9	32	10		100
		Others	%	22	92	50	10		100
	1	Hyder ab id	%	10	52	6			100
	nt agencies	Вошрау	%	65	30	10			100
	en by differe	Bengal	%	50	30	20			001
	Proportion taken by different agencies	Central	°°	25	40	92	xa.		100
	P	Bihar and Orissa	%2	2	50	09	g 		100
		United	96	25	8	50	۲.		100
Approximate		Province or State		(1) Cultivators taking their own or fellow cultivators	(2) Landlords or vulage merchants	(3) Hincrant merchants (Beoparis and Lochias)	(4) Wholesale merchants and crushers' buying agents	(5) Producers' co operative societies	Fotal

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APPENDIX XXIII

Market charges on Linseed in certain assembling markets in the United Provinces

				ę,	(Per 100 rupees.)	2					1
Rema	Cawapore.	Oomkh	Dag.	Gonda	Benarca.	Benda	4 + 4	Budks (District Fatchpur)	Bharwa Sumerpur (Hamar prr)	Barhns (District Basti)	Average
Payable by seller	Re. 4 T	N. 1. 7	Ra. 4 P	Se. A. 9	Re. A 70	4 4 4	Re A F	Ps A T	Re A P	Ra A F	Be A T
Tolls and taxes (terminal tax octror tolls, etc.)	0 10 8			8 0	2 35 6	0 10 8	0 01 0	8 6	0 3 9	8 2	0 10 3
Commission and brokerage	•	0 10 0			100				0 12 6		0 4 3
Handling and weighment charges	1 12 9	0 7 6	0 ~ 1	0 15 0	0 5 0	0 7 8	9 51 0	1 3 9	0 3	9 8 0	0 13 10
Charges for other services	4 4	0 1 3	0 12 6	2 0	0 7 3	0 10 7	0 4 0	0 8 0	0 7 6	0 1 3	6 2
Chartten	0 11 0	0 111	0 4 8	0 7 6	0 1 6	0 4 6	0 * 1	0 5 8	8 0	0 3 2	01 8 10
Quality and weight allowances (Karda dhalfa etc.)	0	2 13 0	0 #	8		0 8 8	8	1 14 0	9	1 14 0	0 6
Macellaneous	1110	3 9 10	6 6 3	3 0 9		0 8 1				1 2 9	7 5 4
Total payable by sedler	9 11 9	7 12 9	4 2 2	7 10 6	4 13 3	6 2 2	6 7 8	3 14 11	3 5 9	4 6 0	6 11 9
Payable by buyer							-				
Commission and brokerage	190		0 22 0		0 0 1	1 12 6	`	0 13 0	0 12 0	0 12 0	0 11 0
Handling and weigh went	0 8 0	0 12 6	0 2 6		0 8 0				0 2 6		4 0
Macellaneous									_		
Total payable by buyer	1 12 0	0 12 6	0 14 6		1 5 6	1 12 6		0 12 0	0 14 6	0 12 0	0 14 8
Grand Total	11 7 9	8 9 3	4 16 8	7 10 6	2 2	7 14 8	8 7 8	4 10 11	4 4 3	20 20 20	201.0

Market charges on Lonseed in certain assembling markets in Bihar and Oressa APPENDIX XXIV

						•									
	Average	Rs A E	0 2 2	130	1 2 0	7 0	0 1 6	0 7 11	0 8 0	2 10 2	4 4		•	6	g) ,
	Chapra	Rs A P	0 3	0 0 1	0 3 9	0 1 0	9 0 0		0 13 0	2 13 9					2 13 9
	Natwar (Shahabad)	Rs A P		0 10 0	0 9 0		0 23			1 2 0	0	٥	•	0 4 8	. .
9	Sahebganj (Santhal Parganas)	Rs A P		0 12 0	0 15 2	0 8 0	0 1 6	0 7 6		61 61		0 1 2		0 1 7	2 13 9
(Per 100 rupees)	Darbhanga	Rs A F		100	0 2 8	0 0	0 1 3	0 10 0		1 15 11					1 15 11
	Maharajganj (Patna)	Rs A P	0 10 0	1 4 0	0 7 6	0 1 0	0 8 0	0 10 0		3 2 6	0 6 1			1 9 0	4 11 6
	Marufganj (<i>Patan</i>)	Rs A P	0 2 0	3 8 0	0 7 6	0 2 0	0 3	0 10 0	- 6	3 14 9		0 0		0 0 2	3 15 2
	Items	Payable by seller	octro tolls etc)	Commission and brokerage	Handling and weighment charges	Charges for other services	Charities	Quality and weight allowances (Karda, dhalla etc.)	STORE THE COLOR	Total payable by seller	Payable by bu yer Commission and brokerage	Handling and weighment	Miscellaneous	Total payable by buyer	Grand Total

APPENDIX XXV

Market charges on Lanseed in certain assembling markets in the Central Provinces, and Berar (Fer 100 rupees.)

	_	_	_				_	_		_	_		_	_	
Itema.	N	agi	er.		ubb		(D	nho ustr ubl	et mi	10	1812	pur ict na).	A	ven	age.
	R			R		r	P.		,	F.		P	R	_	. ?
Payable by seller	-		•		•	•	1	• •		"			"		• •
Tolls and taxes (term pal tax octros tolls etc.)	2	8	0	2	8	0	0	1	11	0	2	6	1	5	1
Commission and brokerage	0	12	0	0	4	0	1	0	0	0	14	2	0	11	6
Handling and weighment charges	0	7	6	0	5	0	0	10	0	0	6	8		7	3
Charges for other services										j					
Charatica	0	0	4	0	2	6	0	2	6	0	0	8	0	I	6
Quality and we glit allowances (Karda dhalta etc.)							0	2	6				0	0	8
Miscellaneous															
Total payable by seller	3	11	10	3	3	6	2	0	11	1	8	0	2	10	0
Payable by buyer															
Commission and brokerage		4	0									į	0	1	0
Handling and weighment	Đ	2	6	0	8	0	0	s	0				0	4	8
M scellaneous									ĺ			ı			
									į						
Total payable by buyers	0	€	6	0	8	0	0	8	0		_		0	5	8
Grand Total	4	2	4	3	11	6	2	8	11	1	8	0	2	15	8
	1		ı			- 1			1			- 1			

APPENDIX XXVI

Market charges on Isnseed in certain assembling markets in the Bomba; Presidency

(Per 100 rupeesa)

Items.	(Dis	ast	t	В	jap	ur	l (Di	etra est		(D;	lapı İstri husi İgai	et ed	Di	asa gao stri asal	n et	A	ers	ıge.
Payahle by seller	R	. 4	P	R	S. 4	r	R	8. A	P	R	S. A	¥	R	s. 1	r	Rs		r
Tolls and taxes (terminal fax, octros tolls, etc.)	 •	1	8	0	15	0										0	3	4
Commission and Brokerage	0	11	8	1	4	0	1	0	0	1	0	0	1	4	0	1	0	9
Handling and Weighment charges.	0	3	4	0	4	2	0	4	0	0	8	0	0	5	0	0	4	11
Charges for other services	(
Chantes	0	3	4	0	4	2	0	e	0	0	2	0	0-	2	6	0	3	7
Quality and weight allow ances (Karda, dhalta etc etc.)												!						
Massellancous	ļ																	
Total payable by seller	1	4	0	2	11	4	1	10	0	1	10	0	1	11	6	1	12	,
Payable by buyer	1						ļ											
Commission and brokerage	}						ļ			,								
Handling and weighment																		
Misrellaneous							Ì					,						
	_	_		_		_	_			_	_		L					
Total payable by buyer															- {			
Grand Total	1	4	0	2	11	•	1	10	0	1	10	0	1	11	6	1	•	-

Market charges on Lanseed in certain assembling markets in Bengal. Pinyab and Central India and Rapputana States APPENDIX XXVII (Per 100 rupos

Average of Central India and Raj putana States	A P Rs A P	00000	2 8 3 1 4	000	0 0 0 0	2 8 3 6 11	
Kotah (Rapu tana)	/Rs A P	0 0 13	-	00	0 10	1 12	
Dewas Sentor (Central Indus)	Ro A P	77 P	3 11 9			3 11 9	nge
Satna (Rewah Central India)	Rs A F	~0000m 84~004 00~800	4 12 6	0 0 0 0 0	0 8 0	5 3 3	to from outs
Bhopal (Central Indiv)	RR A Y	0 100 1 210 2 00 2 00	2 10 6	0 28	0 5 8	3 0 2	ring the Sta
Pathan kot (Punjab)	Re A P	0000 86	1 15 0			1 15 0	inseed ente
Chuadanga (Bon, 11)	Rs A P	0 74 0 0 114 0	2 13 8			2 13 8	Re 3 % on
Леша	Payable by seller	Tolls and taxes (termand tax, outros tells site) [Formloan and Machine and Machine Tolls and registers the site of the site o	Tetal payable by seller	Toyothe by thuyer Commission and brokensgo Randing and weghment Mastellaneous	Total payable hy buyer	Grand Total	Permit tax is lovied @ Re 3 % on linesed entering the State from outside

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APPENDIX XXVIII
Market charges on Lenserd in artion assembling markets in Hyderodad,
(Per 100 runes)

i				(Fer 100 rupees)	ees)						
		Unregula	Unregulated markets			Regu	Regulated markets	otes	}		
1	Parbhani	Dharam	Gulbarga	Average 3 unregu lated markete	Aurang	Sadu	Jains	Latur	Average 4 regulated markets	Average 7 markets.	
Payable by seller	B. 4 P	Rs A P	Ra A P	Rs A P	Rs A P	Rs A P	Rs A P	Rs A F	Rs A P	Rs A P	,
Tolls and Taxes (terminal tax	0 4 3	0	5 0 5 9	0 3 10	0 5 10	0 2 10	0 5 10	0 4 3	9 4 8	0 4 4	
Commission and brokerage Handling and weighment	1 4 7 0 8 6	4.0	1 11 6	1 6 10	1 14 10	0 13 9 0 2 10	1 1 2 0 2 7	1 14 10	10 10 10 10 10 10 10 10 10 10 10 10 10 1	10	
Changes for other services Charities Quist yand weight allowances (Korda dadla etc.)	0 1 1	81	0 0 2 7	0 111				0 1 5	0 0	0 1	
Total Payable by seller	22 22 25	0 63	9 8	2 3 1	2 7 11	1 3 5	1 9 9	2 4 6	1 14	2 0 5	1
Payable by Suyer											
Commission and brokerage Habil ng and weghinent Miscellancous	0 2 0	0 20	010	0 4 9	00	0 1 9	4	0 1 9	00 00	00 00	
Total Payable by bayer	0 2 0	0 2 0	0 10 3	0 4 9	0 3 0	0 1 0	7 7 0	0 1 9	0 2 9	0 3 7	
Grand Total	2 4 5	2 2 3	3 0 11	2 7 10	2 10 11	1 6 2	1 14 1	2 6 3	2 1 1	2 4 0	1
									l		

APPENDIX XXIX

Average of mar) et charges on Lonzeed in assembling markets in different provinces

	-		(Por 10)	(Por 100 rupoes)	Por 100 rupoes)	onnces and	states in Inc	ha
fens	United Provinces (10 markets)	Bihar and Orissa (6 markets)	Central Provinces and Berar (4 markets)	Bombay (5 markets)	Punjab (1 market)	Bengal (1 market)	Central India and Rapputana	Hydoraba i
	(Appendix XXIII)	(Appendix XXIV)	(Appendix XXV)	(Appendix XXVI)	(Appendix XXVII)		(4 markets)	(7 markets)
	Rs A P	å		1			(IIAV V	XXVIII)
Payable by seller		4 4 544	Re A P	Re A P	Rs A P	Re a s	-	
Tolis and taxes (terminal tax octror tolls, etc.)	0 10 3	0 2 2	11				168 A P	Rs A P
Commission and brokers and			0	0 3 4			0 12 10	,
Handlu	6 4 3	130	0 11 6	- 0				•
and weighment charges	0 13 10	 1			0 8 1	1 14 0	0 8 5	1 7
Charges for other services			0 7 3	0 4 11	0 2 0			
	0 2 0	0 2 4				-	0 I3 3	0 4 0
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	0 8 10	0 1 5	- 0	_	_	_	0 0	

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Qual ty and we ght allowances {Aarda, dhalta etc.}	5	Total Payable by seller	Pay ble by buyer	Comm se on and brokerage	Ifandl ng an l we ghment	*	T tal Payable by buyer	Grand Total
Qualty an (Karda,	Moonismoons	Total Pa	Pay	Comm se on	Ifandl ng an	M scollanous	T telly	

APPENDIX XXX

Mossiure content in commercial samples of Linseed collected from different parts of India

	Most	ure m clean	ed seed
Province or State	Maximum %	Minimum %	Average %
Assam	}	{	8 33
Bengal	8 18	5 83	7 47
Bihar (North)	8 45	5 11	6 40
Bihar (South) and Orassa	7 69	4 82	5 98
Bombay Presidency	7 52	4 95	5 89
Central India States	8 03	5 56	6 65
Central Provinces (East)	7 93	5 52	6 69
Central Provinces (Central)	7 31	5 40	6 18
Central Provinces (West) and Berar	7 84	4 48	6 11
Hyderabad State	7 38	5 47	6 52
Kashmir State	6 30	5 35	5 90
Madras	ł	}	6 15
Punjab	8 36	5 19	6 83
Rajputana	7 29	5 77	6 33
United Provinces (North-east)	7 51	5 14	6 58
United Provinces (Central	7 13	5 74	6 20
United Provinces (South west	6 81	5 60	6 12
At Bombay	7 10	5 82	6 39
At Calcutta	7 25	5 61	6 45
From shipments for export from Bombay	7 36	6 03	6 69
-	1		

APPENDIX XXXI.

and damaged larseed in commercial samples of Larseed collected from different parts of India.

			Average %	241	44444444444444444444444444444444444444	
Damaged linseed.	,		Minimum %	79	20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Dam			Maximum %•	41.0	0.00 0.00	
	tres)	1	Average %	-	2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
	Other oilseeds	- L	Minimum %		00	
1	Ö	(Oleagi	Махэшиш %		44.5 64.5 1 80.5 1	
1		tres)	Average 0%	,	2000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	1	(Non oleagmous impurities)	Minimum		1 11 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
ed threese		Fore (Non olea	Махимий		00 11 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
maged throward damaged throws	Twinter T		Province or State		Means The Control of the Control of Control	

APPENDIX XXXII Comparison of Linseed contracts of certain associations and mills to

and methods of sampling	a lor Bold inseed		Association, London				% \$ 1040 annual 1000 to 1000 t			-		valuelesa,		Reakoned as half con-	
s of refraction, st		A millim the United		Dor refraction mutual,		tion accepted with cleaning allowance and	to Service 9				trested	!	For Remark	Nes Jan	ollsceds at full value,
respect of the base; ampling	A	Another Calentta	_	9% Ortr 9% buy	allowance or rejecting the goods.					·	.2		Same as A and O . Fo	8.8.2 	
and methods of se	A Calcutta Oct No.	100	ance to seller for less	3% For refraction over 6% Customary	Over 7% sellers to reclean within a week.	have the option (a)	the contract (c) reyes tang the goods and	or (d) accepting the alloward with Special	-	s matter					-
-	Bom	40% refraction M :tand	ance upto 80 For		of land by seller		*#####################################	\$ 88°		all non oleagmons		Upto 2% allowance at Same an A	at full value		
-	T	5% refraction tomary allonanc	Nors If refraction	special allowance is charged which is	s not spenfed but contract,			_	ď		Upto 4% .0.	balf value, Excess			
	Banta of adams	lura (refraction)							Foreign matter		Olleads matter	than Lenseed)			

	Radio Chestel, hossed— Base 145 grun to a gentum Excess a gentum Excess a gentum Excess a gentum excess to the sact of 10% of the enter that provided for every grun ment 14 ergs 10 km and 15 ergs 10 km and 15 ergs 10 km and 15 ergs 10 km and 15 ergs 10 km and 15 ergs 10 km and 15 ergs 10 km and 15 ergs 10 km and 15 ergs 10 km and 10 60% for enter that 10 km and 10 60% for every 1% of week		24 ib B Twall bags and or 24 ib Heavy C bags at sulforence to buyers of 4d per bag
Allowance for dead seed at full value. For damaged seeds at hair value and for allowing seeds at three e gittle value.	Second Edd. A bears 110 groung per grammer pre per grammer pre per grammer pre per grammer pre per grammer pre per grammer pre per grammer pre per grammer pre per grammer pre per per grammer pre per grammer pre per grammer pre per grammer pre per grammer pre per grammer pre per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per per grammer pre per grammer	Smail No provision	New Heavy C bags Bayes may supply their over hage or selers may provide their bags in exchange of an equal member of empty bags from bayess.
Same as A	Consideration of the consideration of the consideration of the consideration of the constitution of the co	By hong from 8 to 10 bags	B. Twitte
Allowance for dead bornet and damagnd machine to the following damagnd seeds 1%, from 1% to 6% allowance at the first white wall over 6%, at full value	to be nonepled to be nonepled to be nonepled	By boma from 8 to 10 bags.	B Twills
Vothing free Allow ance for damaged seeds at half value and for slightly damag d seeds at one fourth value. Discoloured and tookled seeds—1% free, and for over 1% allowance is one-gulfu value.	In Bull meet up to 100, and 100 to 100, and 100 to	By band from 10 bags (for deser piton see page 125)	New B Twills or Heavy C (regals should not be less than \$1 lb, 25 tons for futures confined September for tutures con gracts.
1% free From 1% upto 6% allowance at half value and over old, at the first and over old, and the first allowance at one fourth value.	Contacts refer to	By boma (spear) from 8 to 10 bags (For des or phone see page 13.3)	New B Twills 10 tons for Patures confracts May and September for 'futures con tracts
Demayed Urane	See of grain	Sa np 1ng	Bage Unst Delvery months

* In the contract form of one association only

APPENDIX XXXIII

have this day bought by your order and for your account from -Tons small grains Up-country Lanseed of the average quality of the Season at the time of delivery at Rs not to exceed one quarter per cent Rape Seed and or Mustard Seed

Delivery to be given and taken from————Station———Railway

----) per Bazar Maund, gua anterd

19 .

Linseed Contract used by an Oil Mill at Calcutta. Bought Note

Messrs

Refraction guaranteed as follows . Basis 5 per cent dirt

Dead burnt and fully damaged seeds as full dirt

Contract No ----

DEAR SIRS.

as follows

Country demand any damaged seeds	sa fall dust
country damaged I per cent free exc	us full dirt ess upto 6 per cent as ½ dirt and over 6 per cent.
Dreete 1	out apto o per cent as i durt and over 6 per cent.
Oleagrnous other than linseed as I do	et mate 4
Oleaganous other than inseed as ‡ di In Bold Linseed 150 grains to one or	to upto a per cent excess as full dirt
per staund to be nave by any	and live for excess an allowance of
January refraction exceed 7 per a-	nt buyers have the option to decline
delivery and redirect the lot to— Allowance to be made by buyers for less which no allowance and the state of	on buyers have the option to decline
Allowance to be made by bureau C	-Dock at sellers' risk and expense
Allowance to be made by buyers for less which no allowance will be made	refraction down to 3 per cent below
De la made	- now a to h ber cent pelow
Bags-New B Twill bags	
Terms—Cash on delivery	
This contract is made under the co	
Broken is made under the co	nditions detailed below
dedneted at (0 0 6) sty prop	- desarted below
Brokerage at (0 0 6) six pies p deducted from sellers' Bill by the buyers	er maund payable by sellers to be
	We are, Dear Sirs,
A	
Accepted	Yours faithfully,
	Broker
	-
1 Refraction guaranteed (E) Sauce	
1 Refraction guaranteed (5) five percent customs over that sellers to reclean within a week failing which of recleaning the seed themselves	CONDITIONS
that sellers to real-	- v
Of recleaning the good at week failing which	buyers to have the falls
a re the option of doing on the case the	seed refracts over cover
be at Howesh De 1	try allowance
Wise Station, and to said sample	og ten per cent, of the whole should delivery
be at Howah Railway Station, and to accept any tend these thorah Railway Station, and to accept any tend The seed to be in sound merchantable condition Refraction to be made at home	ers from sellers by railway receipts or other
	III at
arbitration but buyers werels, and del very etc. under	the
5. Any d sputes as to quality del very etc under arbitration but buyers weights and refractions to be une	ondrings it contract to be settled by European
arbitration but buyers weights and refractions to be under	e accepted by sellers

APPENDIX XXXIV

Contract Form of the Grain Merchants' Association, Bombay THE GRAIN MERCHANTS' ASSOCIATION

Contract No Bombay, 193 Broker Messrs Bombay

Dear Sirs,

We have this day sold|bought to you—
Tons|Bags only 1 per cent
more or less of—
Fair average quality of the season at Rs—
and 1 Dokda
Dharmada per Cwt net weight free Railway Station Bombay or to be
delivered at Bayers' Godown

Bagging —New Calcutta No 2 twills or heavy C Bags weight not less than 2½ lb In case of godown delivery, bagging shall be the same as in Railway Delivery|Terms

Buyers shall have the option to refuse Railway Receipt if not tendered 9 days before the due date of the contract in the event of the contract being more than 50 tons each 50 tons to be regarded as separate contract

1 efraction -4 per cent reciprocal

Payment -Advance and final payment shall be made according to the rules of the General terms and conditions

Brokerage -- i per cent to be paid by the sellers in all contracts except in which i per cent to be paid by sellers

The above mentioned quantity contracted for to be delivered to

This contract is subject to the rules of the GUNERAL TERMS AND CONDITIONS of Delivery contract as settled by the Grun Merchants' Association and buyers of which the parties admit that they have knowledge and notice and which terms shall be deemed to be incorporated in and to form part of this contract.

	Yours	farthfully,
Seller's Buyer's Signature		
Broker's Signature-		

APPENDIX XXXV

Contract Form of the Maruads Chamber of Commerce Ltd, Bombay

THE MARWADI CHAMBLE OF COMMERCE LTD, BOMBAY.
Official Contract Form
Bombay,————————————————————————————————————
Broker
Messrs
Bombay.
Dear Sirs,
We have this day bought sold from you, subject to the Rules, Regulations and Bye laws of the Marwadi Chamber of Commerce Lid- tons of—at Rs.—per evit Brown Bold Lauseed, May, September Delivery delivered at buyer's godown, or Railway Station, Bombay
Terms
Description Fair average quality of the season
Delineryat seller's option
Refraction Lanseed
4 per cent With usual allowance
upto
Bagging-Net in new Calcutta 2 Twill bags weighing 23 lb
Payment -90 per cent cash against Railway Receipt goods
Brokerage per cent to be paid by the seller
This contract shall not be cancelled

Buver's Seller's signature ----

APPENDIX XXXVI

Contract Form of the Calcutta Wheat and Seeds Association CALCUTTA WHEAT AND SEEDS ASSOCIATION

SOLD NOTE

Contract No

Calcutta

19

DEAR STRE.

We have this day SOLD to you the following goods --

tons of new crop

of the season 19 at Rs Bazar Maund including gunny bags Average quality annas and pies per

Petraston 4 to June to

Refraction to be drawn by

(1) Sellers to tender the above goods and buyers to take delivery from

- Howesh or Kidderpore Docks between the 10th and the last day of the month of

 (2) Fo be delivered in dry sound and merchantable condition in
 - (2) fo be delivered in dry sound and merchantable condition in new bag
 (3) Each bag to contain bazar maunds nett or any
- quantity buyers may require for which only payment is to be made

 (4) Sellers must be present at the time of delivery to inspect the weigh
- ing and sampling should they fail to do so after notice to sellers buyers v II worth and sample with a usual Railway work ng bours and sellers must abide by the result
- (5) Each delivery to form a portion of this contract, but no lot of less than a tons to be tendered
- (6) Refraction guaranteed five per cent with customary allowance for any excess up to seven per cent
- (7) The presence of sto e or kunkar throughout a parcel of wheat or seeds shall entitle the buvers to reject the parcel
- (8) Buyers to have the option of we gling the whole parcel or taking at an average weight as customary
- (9) In taking weight bags one seer or more in excess of the stipulated weight not to be accepted in average.
- (10) The refraction of the verled samples representing deliveries to be verentiated at buvers office within four days after delivery futing which three days not ee to be given to the defaulting party on the expiration of which term the refraction to be referred to arbitration whose decision shall be final
- (11) On ever Vondav subsequent to the date of this contrast up to the date due teller parts stall up to the other (as the case may be) the difference between the contract price and the market rate prevailing at the close of the preceding, day and this contract shall continue at the latter rate case of default of such payment the defaulting parts, shall be deemed to have committed a breach of the contract. Such payment shall be noted on the back of this contract. If any Vonlav be a public hobiday payment shall be noted on the back of this contract. If any Vonlav be a public hobiday payment shall be made on the preceding business day.

(12) Terms of payment,

- (a) In the event of tender of Railway Receipts the buyers (at the option of the sellers) shall pay 90 per cent. of the value at the time of the making over of the Railway Receipt or within 45 hours thereafter. The balance shall be paid within a month from the making over of the Railway Receipt and in case of default the buyers shall pay interest at the rate of 12 per cent per annum from the expiry of the month up to the date of payment.
- (b) In the event of Delivery Order being handed over the buyers shall pay for and take delivery, of the goods at any time within the period of this contract.
- (13) Delivery Orders shall be transferable by endorsement and the person or firm originally assuing the delivery order shall be found to deliver the goods to the ultimate bolder against payment of price.
- (14) Sellers shall be hable to pay demurrage from the day next after the date of tender of Railway Receipt or delivery order, subsequent demurrage shall be paid by the buyers.
- (15) When Contracts fall due on Sunday or other holidays the last date of delivery shall be the preceding business day
- (16) Any dispute arising out of or under or in any way relating to this criticated shall be decided by the arbitration of the Calcutta Wheat and Seeds Association under its rule in force at the time of the arbitration
 - N.B —Brokerage at 8 annas per ton to be paid by sellers and buyers each without any abatements contract cancelled or not concelled goods delivered or not delivered.

Broker

Yours faithfully,

APPENDIX XXXVII

Tumcal Exporters Contract

BOUGHT NOTE

Contract No. KANTAPHKUR DELIVERY

To Messes

193

baas)

CALCITTA.

We have this day BOUGHT from you the following goods -

on 1 or ons of 2240 lbs sau (baas sau {

Calcutta.

average quality of the season at the time of delivery. I per cent more or less to be delivered at Kantapukur) at Rs (sau Rs

per maund of 824 lb nett bags included

Refruction quaranteed as stated on back of this contract

- 1 Goods to be delivered in dry sound merchantable condition in new single B Twill bags of 21 lb
- 2 Each hag to contain bazar mannds 2 seers 10 nett for which only payment is to be made
- 3 If any parcel bears other shipping marks than those of the buyers the buyers to have the option of re-bagging and or re-marking same, charg ing sellers with all expenses and any demurrage that may be incorred or of re ecting the parcel unless sellers supply new bags and pay marking charges
- 4 There is no tender unless the goods are at Kantapukur and are in every way in terms of Contract
- 5 Each tender to form a portion of this contract but buyers have the option of refusing to accept tender of less than 5 tons or of accepting same at an allowance of one anna per maund against cellers
 - 6 The goods to be despatched to Kantapukur and to be rendered avail able for delivery there during the day time under the ord nary rules of the Port Trust Railway and buyers to take delivery within 15 days Should buyers fail to take delivery within 15 days sellers may then give buyers 7 clear days' notice in writing to take delivery and if delivery is not effected within this time the weight is to be considered as being in accordance with invoice weight in case of Railway Receipt, and correct weight in case of delivery orders. A tender made after 1 PM on any business day shall not be con sidered a valid tender on that day
 - 7 Sellers to tender the goods to the buyers in terms of Clause 6 but to remain responsible for demurrance for one week subsequent to date of tender (Sundays and other non-demurrage days excluded) and in addition to pay to luvers for a further period of three weeks the difference if any between the lowe t ra e the Port Commissioners may be charging and the actual demurrace du on the tender
 - In case of dispute as regards quality refraction or condition of the goods demurrage to be charged in t as if the tender was made on the day of the settlement
 - S Buvers have the option of weighing the whole parcel or of taking average weights. In the latter case 5 per cent of the bags to be weighted Buyers to choose the bars for weighing purposes. Should the difference

between the heaviest and lightest bag out of every 5 bags so we gled be more than one seer per bag a further 20 per cent of the bags to be weighed and charges at the rate of Rs 1 8 0 per hundred bags to be paid by sellers

- 9 Sellers to pay repacking charges at the rate of Rs 4-8 0 per 100 bags on lots containing bags virving from the agreed weight by more than one seer per bag
- 10 Sellers may be present to inspect weighing and sampling Should they after 46 hours from date of posting written notice fail to attend buyers can proceed to weigh and sample themselves and sellers must accept Buyers' weights and the sample drawn by them as representing the pared.
- 11 Should the goods tendered not be in terms of contract Buyers have the following options
 - (a) Of cancelling that portion of the contract
 - (b) Of rejecting the parcel and buying against sellers or charging them the difference in price between the contract rate and the market value on the day of rejection.
 - (c) Of taking the goods with an extra allowance to be fixed by buyers over and above the scale of allowances on reverse
 - (d) Of recleaning the goods themselves at sellers expense u , Rs 6-8 0 per cent bags
- 12 The presence of stones or lumps of earth entitles buyers to reject the lot tendered
- 13 If buyers find after mixing the final analysis that the goods contain more refraction than that contracted for they shall be at liberty to charge sellors cleaning charges at the rate of Rs 680 (Rupees six annas eight) per 100 bags
- 14 Samples to be drawn by buyers by bomah and to be sealed by both buyers and Sellers The refraction of such samples to be made it Buyers office in Calentia within ten days after weights have been tiken If after three days notice Sellers fail to attend Buyers will proceed to analyse the sample in the sellers absence and the result shall be final
- 15 In the event of failure to deliver or of short deliveries Buyers to have the following options
 - (a) To claim and recover from Sellers the difference between Contract price and the market rate on the business day next following the last day for tender
 - (b) To buy against sellers and recover from sellers all losses and damages sustained
- 16 If the period during which the tender is to be made shall expire on a Sunday or a Chamber of Commerce holiday the last day for tender shall be the business day next after such non business day
- 17 Should the goods be tendered in begs of a different or infersion quality to those contracted for such begs shall be rejected and sellers all pay the buvers Rs 5 8 0 per 100 bags for cost of repucking and restaching plas market rate of the guantes rejected or buyers to have the option to accept such different or inferior bags at an allowance to be fixed by the buvers.
- 18 Bags must be properly sewn with strong twine and if gools i acked in double bags both inner and outer bags must be sewn otherwise sellers that pay buyers for the expense of resewing at the rate of Re 1.4-0 per 100 bags in the case of single lags and Rs 2.80 for double bags

- 19 Terms of payment cash after delivery Conditions in the contract as to delivery or otherwise are not affected by acceptance of Railway Receipt as security for advance given
- 20 Buyers may appropriate from the money payable to sellers the amount of any outstanding bills they have against the seller
- 21 Brokerage at the rate of six pies per maind to be paid by sellers without any abatement contract cancelled or not cancelled goods delivered or not delivered any deductions or dustriess eventually allowed being entirely ophonal to the brokers. When delivery is given such brokerage to be deducted by the buvers from value of goods delivered.
- 22 The persons signing on behalf of the sellers deviate that they have a right to make the above contract on behalf of the said firms all o to agree to clause 24 on behalf of all the persons composing the firms they represent
- 23 The contents of this contract have been read and/or trans ated and are duly understood by the parties and the Sold Note given to Buyers
- 24 In the event of any dispute whatsoever arising under this contract, the same shall be referred for settlement in Calcutta to the Tribinal of Arbit ration of the Bengal Chamber of Commerce whose decision it is expressly agreed shall be final and vinding on both parties to this contract
- 25 Anything besides plain signature, in language other than English is null and void

Buyer

Banians

Per pro

Basis.

Lanseed

Basis 5 per cent dirt

Dead burnt and fully damaged seeds as full durt.

(ountry damaged 1 per cent free, excess as 1 dirt up to 6 per cent, over 6 per cent, as full dirt

Discoloured grains as 1 dirt.

Oleagunous other than Lanseed as } durt up to 4 per cept., excess as full durt

In Bold Larseed 152 grams to one gramme free, for excess an allowance of per maund to be paid by the sellers

APPENDIX XXXVIII.

Extracts from the Incorporated Oil Seed Association (London) contract for East Indian Linesed to United Kingdom ports

Pure basis sound delivered.

1 AboutTons sayTons (of 2,240 lb
each) shipment from as per Bill or Bills of Lading dated
or to be datedby steamer or steamers direct or
indirect with or without transhipment, via Suez Canal At-
meluding the usual 24 ib B twill bags, and or 24 lb heavy C bags at
Sellers ontion at an allowance to the buyers of one half penny per bag

If bold Calcuita seed be appropriated, the Incorporated Oil Seed Association shall decide whether the seed comes under the denormation of bold or not. The bays shall be 145 grains to the gramme and any excess shall be allowed for at the rate of 0.15 per cent off the Contract Price for Bold Seed for every gram over 145 with a maximum allowance of 14 per

If Bombay Inveed be appropriated the seed shall be warranted to to be allowed for at the rate of 65 per cent for small grains, any larger proportion to be allowed for at the rate of 65 per cent for every 1 per cent of such excess, the percentage of small grains to be ascertained by The Incorporated Oil Seed Association

3 Payment to be made in London, on vessel's reporting inby net cash, in exchange for shipping documents andlor delivery order (the
latter to be countersigned by Banker, Shipbroker, Captain or Mate it so
required) and policy or policies of insurance effected with approved
underwriters audjor approved letter of insurance (claums payable in
London), interest at 5 per cent or at Bank of England rate if over 5 per
cent at 10 AM on day of payment, to be allowed for unexpired portion of
prompt of 21 days from vessel's reporting *

evment

Buyers to have the power of retaining a margin of 4 per cent accounting for the same on final settlement

Interest at 5 per cent or at average Bank of England rate if over 5 per cent to be paid on any balance due on final invoice from date of prompt up to date of settlement

5 Buyers to be allowed 24 hours from vessell, reporting to lodge documents and apply for delivery and the Company in whose dock the shu discharges shall be ordered by Sellers to week 5 someond and and amend begs in ever 100 as they rise from the shup and 2 in every 100 shall be empted to ascertain the tare (said bags being wrighed together). Buyers to give the sorting orders and failing their so doing the seed to be invoiced as cound, and sweepings to be for Buyer's account. Should the seed so be invoiced in the said of the seed to be invoiced as cound, and sweepings to be for Buyer's account. Should the seed be invoiced in the said of the said of the seed to be invoiced as cound, and sweepings at later than 10 seed to be succeeded to the said of the said of the said of the said of the said of the said of the said of the said of the sweepings at their own expense.

In the case of seed damaged by water, samples of wet seed shall be drawn in sealed bags in the usual way for arbitration, and if required by either party, duplicate samples of such wet seed shall be drawn in sealed bottles to be tested by The Incorporated Oil Seed Association for mosture content solely for the information of the arbitrators. The samples (or sample) when delivered to The Incorporated Oil Seed Association to become and be their absolute property, the charges for sampling, average weighing taming, sorting and analysing to be divided between Buyers and Sellers. Port dues, if any,

to be for Buyers account
6 The percentage of admixture having been ascertained non Basis
oleagmons substances shall be considered valueless and oleagmons as work. Addir't
half the Contract prize of the Inseed. The lass shall be pure Linseed and
the Buyers shall receive an allowance equal to the percentage of admixture
so ascertained. If the percentage of pure Linseed is less than 92, there shall
be an additional allowance to the Buyer equal to the excess of the calculated
allowance over 4 per cent

12 All disputes from time to time arising out of this Contract, including Arbitrary question of Law appearing in the proceedings, whether arising between tion. the parties hereto, or between one of the parties hereto, and the Trustee

in Bankrupter of the other party shall be referred to arbitration according to the Rules appended to this Contract

Summary of Arbitration Bules

I Any dispute arising out of a contract shall be referred to arbitration in London, each party appointing one arbitrator. Arbitrators shall have the power what they decrease to expent an impute whose decrease is to be find.

power, when they disagree, to appoint an umpure, whose decision is to be final. If the arbitration fees to be paid by the party against whom the decision is given except when allowances are fixed by arbitration on country damaged or on seed damaged during the voyage in such cases the fees to be qualify divided, also in other cases, where, in the opinion of the referees,

they should be so treated.

III In the event of one of the parties refusing or neglecting to appoint an arbitrator or the arbitrators not agreeuig to an award or appointing an umpire, or in the case of death or incapacity of an arbitrator or impire, the Executive Committee of Incorporated Oil Seed Association shall appoint an arbitrator or arbitrators, or umpire, to fill the vacancy or vacances:

IV All awards by arbitrators or an umpire shall be in writing and they shall have power to award the costs of and connected with the reference.

V In case either party shall be dissatisfied with the award a right of appeal shall lie to the Committee of Appeal of the Incorporated Oil Seed Association provided the necessary notice is given in time and the fees paid

VI The appeal shall be determined by a Board of Appeal consisting of four members of the Committee of Appeal of the Association

VII The puries to an arbitration or an appeal to the Committee of Appeal shall not be represented or appear by Counsel or Solicitor unless specially permitted to do so

VIII The Board of Appeal shall confirm the Award appealed from unless not less than three of the members of the Board of Appeal decide to vary such Award

IX. No award by arbitrators or an umpire or the Board of Appeal shall be questioned or invalidated on the ground of their not being qualified or eligible unless objection is made in writing before the commencement of the hearing.

Y Any notice may be delivered personally or left at the place where the party is to be considered to be carrying on business.

113 'CAP'

APPENDIX XXXIX

Approximate returns on stocks of Lanseet held at Caleutla and Bonisay.

Calc 1934 25 1934 25 1934 27 1934 29 1937 29 1937 29 1938 39 1938 3	Bombay	1936 37 1937 38 1931 32 1932 53 1933 34 1934 35 1935 38 1998 37 1998 32	Red P. Red P. Red P. Red P. Red P. Red R. P. Red P. Red P. Red P. Red R. P. Red R. P. Red R. P. Red R. P. Red R. R	527815551459313	5 10 11 7 6 1 9 4 6 3 4 9 4 4 12 6 4 15 5 4 13 7 5 12 6		7		47% 0 1 5 0 10 0 0 0 5 0 2 4	0 5 0	8 4 (063) (0113 0 2 8 0 7 11 0 4 4 0 2 0	8 7 0 9 3 0 8 9 0 8 1 0 9 0 5	-	3 0 0 3 0 18 6 1 4 0 0 5 5 0 0 3 0 3 0 3
13 12 13 12 14 15 15 15 15 15 15 15 15 15 15 15 15 15	Calcutta.	1932 33 1933 34 1934 35 1935 36	P Rs A P Rs A P	4 8 7 2 4 9	3 4 5 11 4 12 4 5 1 6	0 71 0	11 0 4 10 0 5 0 0 5 0	7 0 9 10 0 2 4	16 9% 3 3%	4 7%	0 II 8 0 5 2 0 8	8 0 8 0 8 7 0	°, 6 %	4 3% 10 0

† Godown rent we ght and gunny allowance and interest at 5% · December average only

stocks of Lenseed held at upcountry markets. APPENDIX XL.

	See Cost of Net loss of December (10 months)	A 1 RS A P RS A F.		3 0 0 6 9	0 4 0 0 0 0 1 8	2 0) 0 5 6	1 9) 0 4 7	0 7 1	004 071 075	-	
6 mmodn 2	Average premium in December Over Aprile price	18	14 sh	1.6%			0 4 0	%6.9	10 2%	%9 0	933 35
tocks of Lanseed held a	Cost of carrying upoo Not gain September	(6 months)	RS A F RS		°	1 0 3 8	en .	60	4 0	4 1 0 4 4	. August of vonte 1933 35
security relurns on stocks of Lanseed held at appouning	Average Arenge/ April Angust/ April Soptomber	1932 30 price	RS A P RS A. F	3 8 0 4	3 15 7 0 5	3 8 1 0 3	37003	3 0 9 -(0 1	0 0	3 4 0	-
	1	l		Raip if (Central Provinces)	Nat. 11 (Central Provinces)	Cawnpore (United Provinces)	Ban la (United Provinces)	Bil ar Sharif (District Patna) Bihar	Bigg ur (Bombay)*	Gullar, a (11) lerabad) †	

325

APPENDIX XLI.
Estimated stocks of Linseed

(Tons)

,												
	ď	Uprountry markets	teta	Į.	Hyderabad markets	rkets		Bombay			Calcutta	
Vonth	1935 36	1939 37	Average	1935 36	1936 37	Average	1935 36.	1936-37	Average	1035 36	1936 37	Average
Apr 1	81 300	89 B00	90 550	1 700	1 700	1 700	19 000	12 000	15 500	1 300	3 000	2 150
May	69 700	69 200	76 450	2 500	1 700	2 100	24 000	16 000	20 000	2 700	2 000	3 850
June	24 000	77 400	62 700	2 100	1 600	1 850	27 000	41 000	34 000	2 300	2 700	2500
July	52 000	50 400	24 700	2 300	1 100	1 700	25 000	32 500	28 750	2 000	1 700	1 850
Augut	51 500	36 600	4\$ 000	2 700	400	1 550	22 300	32 000	28 650	200	2 200	1 450
September	50 300	14 100	28 700	2 300	100	1 200	000 6	22 500	15 750	1 200	2 000	1 600
Ortober	33 00	16 400	25 450	1 800	100	950	\$ 500	35 000	19 750	3 500	1 200	2 350
Noveral er	21 000	1,6 800	18 400	7 400	100	150	2 000	18 500	12 750	1 500	900	1 050
December	16 000*	11 600	13 800	1 400	100	160	1 000	15 500	11 250	9008	300	250
January	12 500	6 200	9 500	1 300		650	8 200	9 200	9 100	900	200	1 250
Febra ary	9 100	4700	6 900	1 700	200	1 100	9 000 b	\$ 500	7 250	1 200	600	900
March	15 800	t 800	8 800	1 700	1 800	1 750	11 500	3 200	7 350	300	500	950
-	_	_	_									2

Soure —Compiled from linked creaters published by the Importal Comoil of Agricultural Research

• Normal—Estimate not srealable

APPENDIX XLII

0 023 0 037 : Малда-поно : : 0 147 0 223 I on l Results of analyses of vertions someties of Roded Insect to the imported and numificatived in India 0 202 0 412 Ash 2 32 3 83 Rosin act la Unsaponifi pl 1, matter 0 70 0.73 3 hrs Dryn g tamo 5 hrs 8 hrs F pra of hrs 191 0 7 hrs 5 hrs 4 hrs 101 0 105 2 102 0 192 7 101 100 0 100 5 Saponid cation vol 10 3 00 3 83 ري در 9 43 11 80 9 00 Acil valo 0 030 0 035 0 032 0 038 0 938 0 010 0 030 0 930 Sp Gravity . 4 Man factored in In In ũ 즘 å ڇ 1 Imported 2 ŝ

APPUNDUX XLIII

A few regresentative instances showing the grice spreads from produces to consumer in the marketing of Linuces Norz --Liguns in brackets denote percentage of consumer s price

			A rangal ad	_	at Bombay	Re A P	3 8 0	6 52	(19)		14.0	0 1 7	•		(2 1)	3 10 4	6.	
		Pro lone	Oru	Cons trace	че пошоду	Rs A P	3 2 4		9,0	2	(1 69)	(2.6)	0 0	(0 6)	(3.2)	3 5 8	0 1 0	÷
2		Prod seer	Oras	Consumer At Cawn	pore	4 4 2	(81 0)	0 1 0	(0 1)		623	1 C C	9 0	6 4	0.13	(86.3)	_	_
		Producer	(Br rel)	Cons mer	at Cale att.	Rs A P	(78.5)	0 1 3	2	3 10 11	8 4 0	(6,3)		8 4 0	(6.3) 1 x 1	(80 8)	0 2 0	-
7 Ib)		Producer		at Calrutta	Ť	٧ 0		0 1 0	:	3 9 8 (77 5)	0 0 10			0,0,0	3 70 4	(78 6)	56.5	-
(Price per maund of 82 2/7 lb.)		Producer	Consumer	at Calcutta	1 2	- 22		0(2)		(73 g)	0,1,6		(0 3)	6 J 9	4 0 3	0 1 9	(a E)	
rice per mau	Drodue	Gonda	Consumer	- Company	Rs A P	6 9 %	6.5	(1,4)			(6 1)			.e 1) e	3 12 3	0 1 3	ء د —	
<u> </u>		Patna	Consumer (O lm II)	at Patna.	Rs A P	3 8 3	0 1 6	(2.5)	3 9 9	(7.87)	(2 6)	0,0,1	8 1 0		3.11 5		_	
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					PRODUCER S PRICE		village to assembling	3. Propromo	MARKET CRICK IX	4 Charges paid at the	5 Charges pa d at the	market by bayer	ing market	7 COST AT ASSEMPLING	8. Wholesaler s margin			

APPENDIX XLIV

	Dofence Department	Bright and froo from sediment and vasble impurition O 1 grammed and really made solution of pure present clother and 1 gramme of warty rowed in folde in 100 c c of m dameter and about 10 centimetre in longth.	
openfications for Linseed Oil	Indian Stores Department	D OIL. To be the penume produce of lineach penume and un discoped water and under a discoped water a discoped water and under a discoped water and under a discop	-
"Oper sheatton	D-tteh Standards Institution (B.S. Specifications)	Skall be the product of Inneed, for from Park Williams with other one of the Park Williams with other one of the Park Williams with other one of the Park Williams with the Park Williams of the Park Williams of the park Williams with the Park Williams with the Park Williams with the Park Williams with the Park Williams with the Park Williams with the Park Williams with the Park Williams with the Park Williams with the Park Williams with the	in diameter and about 10 contimetres in length
		Соючет регип	-

Specific gravity	931 to 936 at 15 5° C/15 5°C	922 to 926 at 30°C/30°C	931 to 935 at 18 5°C/15 5°C
Rofrs ctrve indox	1 4800 to 1 4835 for the D line at 20°C		I 4805 to 1 4824 for the D line at 20°C.
Iodne value	Not lower than 175	Not lower than 180	Not lower than 180
Sapontheakion value	Not lower than 188	188 to 193	188 to 192
Лендту	Tro from minorm! and added organn acude Acid by shall not oxreed the equ valent of 4 mill grammor of potassum by Iro xulo par gramme of on or 2 per cont of fron fatch acads as alculated as olero acid	Acid value—Not more than 4 0	Free from mineral send And value must not exceed the equivalent of 4 mili grammes of potassium hydroxide per gramme of oil
Dryung time	Shall scome surface dry in not more than 4 days at 60°F to 70°F		Must bocome surface dry an not more than 4 days at room temperature of not below 15°C
Unsupon fial lo matter	Not more than 1 5%		Not wore than 1 5%
	BOILT'D I INSEL'D GIL FOR PAINTS	BOHED TINSPED OIL (Dout to borled)	
Doscription	Shall be char and free from se liment or other meohile matter when keit at 15°C to 24 hours	To be prepared from tenume inseed on and noussary dress, only	To be prepared from a number of the necessary dress only and most dress, only be tree from the necessary dress only and be tree from the number of the from the number of
Colour		Not deeper than Lovil and	other virible injurities Not darker than the tender sample, when viewed transversely in transmitted light
Specific gravity	0 955 at 15 6°C and within pine or manne 0 402 of the specific gravity of the agreed sample, if any	0 929 to 0 941 at 30°C	in straight grass those 1 cm, qiambler and about 10 cm, long 10 5°C 0 935 to 055 at 15 5°C

Drymg tame

Ash

l Rosm

Acaday

APPENDIX XLV.
Monthly wholeasis priess of Linsted, Linsted Oil and Linsted Cake at Bombay
(For mound of \$2.27 lb.)

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Average wouldly wholesale prices of Louser's, Louseof Oil and Loused (ale e APPENDIX XLVI.

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(Per: aund of 82 2/7 Ib.)	1016	1			
(Peri)		4 4 7 8 9 8 1 1 1 1 0 0 0 1 1 1 1 1 0 0 0 0 0 0 0			
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Source.—Linaced priess from Bengal Clamber of Commerces quotations Linsood oil and cake prioce from merchants' records

Average monthly wholesole graces of Loneech, Lanceck Out and Lanceck Cake at Nagpur (the meand of 62 47 1b) APPENDIX XLVII

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September	4 2 10	6 92	2	2	8	=	2 10	4	0		_		63	5	-	-	130		8	61	2 12	0	64	١-	- ž	22	53	3 23	-	63	10	4
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APPENDIX XLVIII.

Prices of various brands of Irrseed Oil at Madras, per 5 gallon Irun

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APPI NDIX XI VIII—contt

Prices of verrous brands of Israec'l Oil at Madras, per 5 gallon Irim-cont.

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Brand B (made In Caloutta)	10 22 0	. 0		In 4 P Rs 4 P 118 4 P 10 12 0 11 4 0	# =	74 4 II		Ils 2 7		R 4 F	. 0	ž -		The 1 Be 2 P	۵.	2		Rs A r	4	Re A 7	1 2	1 4 4 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	+	2			1:
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Brand 1 (n nde In Cale tta)	7 14 0		7 14 0	0	7 14																				_	7 30	9
Brand F (nado in Bo nbay)	2 0		0 10 2 0 10 2 0	0	8	0	임	Ç4		10 2 0 10 0		•														7 14	0
Brand G (made in Rombay)										1 2 0		c		•			<u>-</u> -	10 G	-						_=	•	
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Source - From a norel ant a records

APPUNDIX XLIX

Average monthly retail and wholesale prices of Aun Linseed Oil at Delhi.*
(Rones vor maned of 82 217 lb.)

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4	-	1033			2	1934		~	1936,		=	1936	ř	1937	ı
Month	Beta 1	°	Wholesale	Retail	-	Wholesalo	1 -9	Reta l	Wholeskie	Retail.		Wholesale	Retail	Wholessie	_
	Rs. 4 P	2	1	2	1	188 A	1.	Re. A T	Rs A P	2	1:	Rs A W	Rs A P	Ra & w	۱.
January	12 5 0	=	0	2	•	'n	•	14 9 0	13 0 0	E	7	12 8 0	15 3 10	12 8	0
Pebruary	12 8	=	8	22	0	0 2	0	0 6 71	13 0 0	22	*	12 8 0	15 3 10	12 8	0
March	12 5 0	-0	8	120	0	=	0	14 9 0	13 0 0	2	7	0 8 21	15 3 10	12 8	0
April	1110	=	1 3	2	0	°	•	32 5 0	12 0 0	2	÷	0 8 21	34 8 9	12 14	0
May	11 6	30	5 0	2	0 8	0 11	0	12 8 9	0 52	13	*	12 8 0	14 8 9	13 0	0
June	1 6	2	0 0	2	0	20 0	•	13 5 3	12 0	0 13 6	*	12 8 0	15 3 10	13 0	0
July	9 11	2	0	12	0		0	13 6 3	122	13 6	7	12 8 0	15 3 10	2 0	0
August	=	2	0	22	0	0 2	0	13 5 0		13 (ž,	12 8 0	15 3 10	13 11	9
September	22 8 0	=	0 0	22	0	11 0	0	15 3 9	73 8	22 0	+	12 8 0	14 8 9	13 0	0
October	12 5 0	=	61	2	0 %	30 6	a	15 3 9	12 8	91	8	11 10 9	14 8 9	13 0	0
November	12 5 0	=	0 0	21	. 3	2	63	16 3 9	13 8	0 12	11.	11 8 0	14 8 9	13 0	0
December	12 5 0	=	0	12	0	° a	0	13 6 3	12 8	21	=	11 8 0	13 14 7	e E	0
Annual average	11 115 4	2	12	23	80	10 34 4	1-	13 15 8	12 0	13	-	12 4 3	14 13 5	13 9	1 **

"Suppled by the Superatendent of Industries, Delb!

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APPENDIX L.

Average monthly wholesale and retail prices of Raw Innseed Oil at Amraoli

		933.	1	934	1	935.
Month.	Whole sale	Retail	Whole sale.	Retail	Whole- sale	Retail
	Rs A P	Rs A P.	Rs. A. P.	Rs A P	Raar	Rsar
January	10 1 9	10 15 6	9 13 0	10 9 3	13 0 3	13 10 1
February	10 1 9	10 15 6	9 14 4	10 9 4	13 6 2	14 1 5
March	10 1 1	11 3 9	10 2 10	1		
Aprıl	9 13 6	10 12 11	. 1	- 1		11 4 0
May	9 10 5	.		1		12 14 8
June	9 5 4	. 1	'	1	- 1	3 1 11
July	10 1 7 1	0 0 9 12		1.	2 5 6 1	3 0 6
August	10 7 1 1	1.	1	1		
September	10 3 9 1	, , ,				•
October	10 8 7 11	- "		5 6	.	••
November	10 6 4 11	- "	12	5 6		
December	.		6 5 12	1 5	.	•
		11	9 4 12	4 1	.	
Annual Average	10 1 3 10	14 5 11	0 10 11 1	2 1 12	3 1: 13 (

Source -From records of an oil mill.

APPENDIX LI

Extract from the London Cattle Food Trade Association Contract for Imported Feeding Cakes and Meals

Oughty —At time of loading to be fair average of the season's shipment per cent of oil and albuminoids combined, and not more than per cent of sand and/or silica

Should the whole or any portion not turn out equal to warranty the goods must be taken at an allowance to be agreed or settled by arbitration as provided below except that for any deficiency of oil and albummonds there whall be allowances it buyers at the following rates or 1 per cent of the contract price for end of the first 3 mults of deficiency, maker the guaranteed percentage, 2 per cent of the contract price for each unit in excess of five and proportionately for any fraction thereof For any excess of sand and/or silicat there shall be an allowance of per cent of the contract price for each unit of excess and proportionately for any fraction thereof. Should the Cake and/or Medi contain over 5 per cent of sand and/or shies the puyer is critilled 11 seject the goods, in which case the contract shall be null and void for such quantity rejected.

The goods are warranted free from castor seed husk but should the malgyss show a percutage of castor seed husk not exceeding 005 per cent the buyer shall not be entitled to reject the goods but shall accept them with the following allowances 2s 6d per ton not exceeding 001 per cent, 3s 9d per ton not exceeding 002 per cent and 5s per ton not/exceeding 005 per cent. Should the first analysis show the goods free from castor seed and/or castor seed husl such analysis show goods free from castor seed the first analysis showing castor seed busk to be present a second samp c may be analysed at the request of either party and the mean of the two analysis shall be taken as final. Should the parcel contain castor seed huss in excess of 005 per cent buyers shall be entitled to reject the parcel, in which case the contract shall be mill and void for such quantity rejected

Latent defect.—The goods are not warranted free from defect rendersmall same unmerchantable, which would not be apparent on reasonable era minution, any statute, or rule of but to the contrary notwithstunding

Simpling and analysis—Samples of each mark to be drawn on or before removal from the ship or quax and essied in four portions jointly by Sellers and But to or their representatives. If required by Bayers one sailed sample shall within ten days of sealing be submitted for test to the malyst of the London Cattle Food Trade Association (inc) to whom samples and instructions should be sent ineet. If then required by either party not later "aun ten days after receipt of official copy of sailwas a second sealed sample shall be at once submitted for test to Dr Bernard Drer and Partners Limited. The mean of the two analyses shall be accepted but if the variation exceed, a half per cent a third sealed sample shall, at the required of either purty made not later than ten days after receipt of official copy of the second analysis, be at once submitted for test to Dr Aug

Voelcker and Sons and the mean of the two analyses nearest to each other shall be accepted as final and binding on both parties. Should the analyses nor analyses award on allowance to Buyers, the cost of the test or tests shall be for Buyers account. The fourth sealed sample shall be retuned for arbitration purposes if required (Lams in respect of analysis shall be retuned made by the last Buyers within twenty one days after receipt of the final certificate of analysis.

APPENDIX LII

Extract from the Hamburg Cattle Food Trade Association General Arrival Contract No III A (Indian Oilcakes)

1 Weight--2,210 English lb = 1016 kilos (a) Shipping weight guaranteed within 1 per cent

Sellers shall reunhurse buyers promptly after receipt of weight certificate for any loss in weight exceeding 1 per cent of the weight invoiced On the other hind Buyers to pay sellers for any weight in excess of 1 per cent of the weight invoiced respectively the Bill of Lading weight

(a) Delivered weight

Any deficiency or excess in weight is to be settled promptly after receipt of weight certificate, except in cases arising from Sea Accidents or from causes considered equal thereto, when the invoiced or the Bill of Lading weight is to be final.

10 When sales are made on type sample slight variations in colour and grinding are not to be objected to Where no uniformity of colour and grinding is provided for, goods of far average contract quality are to be accepted as good delivery. In the case of oleakes, reasonable breakage is not to he objected to

In the event of castor seed being found, even if only in traces buyers are entitled to either reject the goods or to accept them with allowance

Should buyers at all themselves of the right of rejection they are emitted to a refund or quay charges, reception charges hisherage and loss of interest. The presence of castor seed is proved it shown by any one analysis even though another test may show a different result. Sellers, however, are entitled to claim from buyers that the remains of the sample on the strength of which the presence of easior seed has been found are to be re-sealed by the Analytical Chemiet and that this sample is to be held at the disposal of sellers for a second analysis with regard to the quantity of ensor seed contained. The mean of the results thus obtained is to form the basis for final adjustment. On the vallers of the Hamburgsehe Botanische Statis. Intitute andfor the laboratories of Prof Dr Schmidt and Weerers andfor Dr Carl Enoch of Hamburg are to be recognised for the testing of easter seed.

Should buyers agree to take delivery of the goods even if containing castor seed, sellers have to grant to buyers the following allowance according to the quantity of easter seed present —

2 per cent of the contract price if the presence of Castor seed does not exceed	0 002 per cent
2½ per cent of the contract price if the presence of Castor seed does not exceed	0 005 per cent
31 per cent. of the contract price if the presence of Castor «ced does not exceed	0 008 per cent
44 per cent of the contract price if the presence of Castor seed does not exceed	002 per cont
5½ per cent of the contract price if the presence of Castor seed does not exceed	005 per cent
7½ per cent of the contract price if the presence of Castor seed does not exceed	008 per cent

9 per cent of the contract price if the presence of Castor seed does not exceed II per cent of the contract price if the presence of 010 per cent Castor seed does not exceed

15 per cent of the contract purce if the presence of 0 25 per cent. Castor seed does not exceed

In the event of deficiency of Oil and Albuminoids sellers have to allow

1 per cent for each per cent of deficiency upto 3 per cent, 2 per cent for each further per cent of deficiency if the deficiency amounts from 3 per cent to o per cent., 3 per cent for each further per cent of deficiency if the deliciency exceeds 5 per cent

The presence of sand upto 2½ per cent is not to be objected to Goods containing from 2½ per cent to 5 per cent are to be accepted by buyers against an allowance The allowance to be 1 per cent of the purchase price for each per cent in excess of 24 per cent If the presence of Sand is in excess of 5 per cent buyers are entitled to reject the goods and to demand refm d of the expenses, mourred for quay charges, reception charges, lighterage and loss of interest

Should buyers decide to return the goods on account of too high a per centage of sand or on account of the presence of castor seed even if found only in traces if upto 0 02 per cent the market value of sound goods on the day when the goods were rejected is to be fixed by a broker appointed by the Chairman of Section 1 of the Cattle Foods Trade Association of Hamburg, or by a member of the Committee acting on his behalf, and on the basis of the pice thus fixed settlement pro and contra is to be made between sellers and buyers Fees for the determination of price to be borne

Notice of rejection to be given immediately upon receipt of analytical results, either direct to sellers or other agents

Only analyses made by Hamburg Sworn Analytical Chemists and the Botanical State Institute of Hamburg will be recognised, with the excep

Sealed samples are to be submitted to the analyst within 5 working days from the date of sampling Should the result of the analysis show an under test, sellers have the right to have the second sample analysed by another sworn Hamburg Chemist not later than 8 working days after they or their agents have received the results of the first analysis of the two analyses toe two to form the basis of allowance Should the difference between the two analyses exceed 1 per cent the third sample at In the event the request of either party shall be submitted for analysis (failing agree ment, to some other chemist) to the Botanical State Institute of Hamburg and the mean of the two analyses nearest to each other shall form the basis for allowance Should the result of the analyses be such as to award an allowance to Buyers, the cost of the analyses shall be borne by Sellers but in the contrary event by Buyers Claims for under test shill not be valid unless made within 8 days from the date of certificate of analysis

Should the analysis show an under test of Oil and Albuminoids of 10 per cent or more, buyers have the right either to receive the goods at the allowance provided for or to reject them, in which latter event all expenses shall be for

12 Should the goods be inferior in quality or in contents to contract warranty buyers shall not be entitled to reject but shall take delivery and pay for them in accordance with the contract The amount of the damages for inferior quality and or of the allowances for inferior contents shall then

APPENDIX LIII

Typical Contract used by Exporters in India for the purchase of Oilcakes

	A cNo
ealle calle cent	93 Calcutta,———————————————————————————————————
and	Price—Rs———————————————————————————————————
	Due date—The goods to be delivered by 3 № m of———————————————————————————————————

Tenders -Buyers to have the option of asking the Sellers to tender the goods either -

- (1) At the Buyers Sheds rented from Port Commissioners at Kantapaker, or
- (2) Alongside a named steamer

Goods shall be deemed to have been accepted only when the Delivery Receipt has been given by Buyers to Sellers

Pucking-In strong second hand bags with no patches or hole. Each bag to contain - Mds - Srs - Chks (Mds of 82 2 lb) or _____lb nettleross

Basis -The goods to be free of any percentage of Castor seed an a guaranteed to contain --

Not less than per cent Oil and Albuminoids

Not less than per cent Nitrogen

Not more than per cent Sand

Analysis -To be made by Messrs ----Analysis fees to be paid by Buyers if the quality is equal to or over the guarantee and by Sellers if under

Allowances -Oil and Albuminoids - Deficiency of the guaranteed per centage of Oil and Albuminoids to be calculated as follows -

For the 1st 3 units or part thereof

1 per cent per unit For the 4th and 5th units or part thereof 2 per cent per unit.

For the 6th and subsequent part thereof 3 per cent per unit.

Astrogen - Deficiency of the guaranteed percentage of Nitrogen to be calculated as follows -

Deficiency multiplied by the price and the product divided by the guaranteed percentage of Nitrogen

 $\mathit{Sand} - \mathsf{Excess}$ of sand over the guaranteed percentage to be calculated as follows —

 $1~{\rm per}$ cent per unit and proportionately for any fraction thereof Over $5~{\rm per}$ cent, Buyers option to reject

Castor seed - The scale of allowance for Castor seed is as follows -

Upto 004 per cent

Above 004 per cent upto 006 per cent 1 ann

Above 006 per cent upto 008 per cent 1 anna per maund 2 annas per maund 2 annas per maund

Above 008 per cent to be rejected

Weighment and Sampling—To be made by Buyers in Sellers' presence and at Buyers' expense. Should Sellers fail to attend at the time and place of weighment and sampling as given to them by Buyers (notice of which shall be sent to Sellers not less than 48 hours previous to the appointed time) Buyers to draw samples and effect weighment and such weighment and sampling to be final

Payment -- In cash against delivery of the goods

Buyers may appropriate from the moneys payable by them to Sellers the amount of any outstanding Bill they have against Sellers

Default —In the event of the Sellers failing to deliver the whole or any portion of the goods contracted for Buyers to have the following options —

- (1) of cancelling the undelivered portion of the contract,
- (2) of holding the Sellers responsible for the difference between the contract price and the price ruling for ready goods at the place of delivery on the day following due date

Insolvency—In the event of Sellers or any of them being adjudicated insolvent or filing a petition for such adjudication or entering into a composition or arrangement with their or his creditors or committing an act of insolvency Buyers shall immediately on the day of such event have the same rights as to to determination of the Contract or otherwise as if Sellers had defaulted and that were the last day for delivery

Arbitration —All disputes whatsoever arising on or out of this Contract shall be referred to arbitration under the rules of the Tribunal of Arbitra tion. Bengal Chamber of Commerce applicable for the time being for decision and such decision shall be accepted as final and binding on both parties to the Contract. The award may at the instance of either party or Judicature at Fort William in Bengal

Signatures — Anything besides plain signature in any language other than English shall be void

Seller,	3
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GLOSSARY OF VERNACULAR TERMS

A

Adhels

Measures for grain and oilseeds

Ann Handful

Arhat, Arat Commission and the business carried on by commission agents

Arhatiya or Arhatdar, Aratdar Commission agent

R

Bahang:

A pole the ends of which are connected by ropes to a flat contrivance for carrying load the pole being balanced on the shoulder (Al o Banka kawad)

Ba idha Shallow dug out half above and half below the

ground used for storing grain etc

Banian Cuarintee broker who frequently combines the

business of a shroff or banker

Bani ia Village merchant who primarily trades in agricul

tural produce but who is generally the village

financier

Banka See bahang.

Bardana Sack—usually refers to the jute sacks or gunny bags used in the produce trade (see also bora)

Rosta See bardana

Baug Weightnan or measurer

Bayas Market tax
Bazar Dhara Bazar terms

Beopan A trader an itinerant erchant

Bhawlari Strekeeper

Bharols Vase shaped receptacle made of mud used for storing

gra ns etc

Rhickie Waterman or water carrier

Bhusa Straw bush

Boma(h) An open end spear used for drawing samples from bagged grain or seed (See also parkhi)

Bora(h) See bardana basta

B-stty A retaining fee or allowance

C

Chahens ٠. Food or diet allowance Chaudhara Headman ChekkuSee ghans Charhia or Charrahia Labourer who holds the bag near the scale or puts the bag on the pan at the time of weighment Chhatank I/16th part of a seer, equivalent to 5 tolas. CholamSorghum Vulgare One of the millets grown in Chowka A Central Provinces grain measure. ٠. Chowkidar Watchman ח Dalal .. Broker $Dalal_1$ Brokerage Dandidar. Scaleman Darshans hunds A sight draft Deorhi .. ٠. .. One and a half times, system of loans in which one and a half times the quantities (of seed) bor rowed are refunded Derhser (seer) One and a half seer DesiLocal , indigenous Dhalta Draftage or weighment allowance in favour of buyer Phara Literally—flow, practice Dharmada A deduction for charity Dhola Receptacles made out of bamboo splits, used for storage of grains and odseeds Dhol1 Diminutive of dhola Drival. A Hindu festival, when illuminations take place on DokdaHalf anna (Term used in Bombay grain trade) Dools Small receptacle made of bamboo strips Durga Puja Worship of the Goddess Durga-an important Hindu festival in the late autumn G Gadd,

Literally a mattress' the term is applied to denote a place of business, from the fact that it is custo mary for the clerks employed by arkatiyas, shroffs, etc., to work scated on mattresses.

A deduction made by the arhatiya to defray office

Gadds Lharach

349

Ganda Laterally -- set of four the term is used to mean an anna in east United Provinces and adjoining parts of Palva.

Ganj or Gunj A grain market

Ga.ar A mixture of wheat or gram and hisseed

Ghans A primitive arrangement for the extraction of oil, largely used in villages

Gorda A Bihar and Orassa measure

Charehals or Gosshals At institution providing shelter for old decrept and involvidence

Gur Unrefined sugar

ਸ

Hammal A porter or market labourer

Hammali Wages charged by hammal

Hat A periodical market

Hoters Name given to white or yellow linseed in the Central

Propagates

Humka A method of sale in which the buyer makes his bid after a visual examination of the produce

Hund: A bill of exchange or draft

Hundikar A forwarding or clearing agent

.7

Jaluana Laterally-light refreshments from jal (water) and name 'to drink)

ĸ

Knehcha

Literally raw and unfinished The word
has a wide range of meaning eg a knehckor odd
is an immetabled road \(\) / cha as applied to
work would imply ship-hod or mellicient knehcha
arhitatiga a trader of si sall n eans dealing in
agricultural produce before it is barged or made
grad for finial sale.

Kal'arı A menual (female) who cleans co ng utens is

Kalı maı A Hındu goddess Laterally Vother Kalı

Karda Inpurities or fore gn matter also allowance for the same

Kasti Sales made after deducting the impurity content which is determined on the basis of a sample of

Kata A B her and Or so gram measure

Katha A Ce tral Provinces grain meature

Kawad See bahangi

Khandy (Candy) A measure used in the Central Provinces and in some

of the adjacent areas

Kharch-garı Charges for cart

Khattis Underground pits or dug outs used for storing grain

ere

Khirwar A weight used in the rural areas in Kashmir (equiva

lent to 83 standard seers)

Ko.hvas See beopars

Kolhus See ghans

Kuras

Kothalas Large vase shaped receptacles made of mud used for storing grains and oilseeds

tot bioting gratits and otheres

Kotha A room in which produce is stored also a hving room

Kothi See kothalas also a business house

Kunkar Small pieces of stone gravel

K iro A Central Provinces measure

L

A United Provinces measure

Loinas A bind of receptacle made of wicker work of rice straw with a capacity of 2 to 5 mainds of linseed

M

Mahayan Money lender or banker literally, a great man

Malquzar One who pays land tax, a landlord

Manda Manda Laterally-cheapness Bear option

Ma di A market

Man: A Central Provinces measure

Man Ameasure

Marwari One hailing from Marwar in Rajputana As a com

munity well known for their business capacity and astuteness

Vela A fair

Mocha A small container n ade out of rice straw used for

storage for grains and oilseeds

Moongries Wooden mallets

Muccaddam Literally essential hence headman or chief
Labour contractors and middlemen who figure
largely in the Bombay grain and oisceds trade

are also called by this name

Muddat Literally-"period" A deduction made by the arhatus to cover the loss of interest on money which he pais in advance to his seller client Muddats.hunds A bill of exchange drawn for a specified period Munima A deduction made for clerks Ħ Scaleman Nakadar Deduction made for making payment in silver and Note batta not currency notes P Pakka . Literally-true or mature or real A pakka arhatiya 18 a true wholesaler Par A local weight in Kashmir varying from 20 to 30 seers Parla .. A United Provinces grain measure Paili A Central Provinces grain measure Painth See hat Pairoo .. A type of storage recentacle made of bamboo strips and plastered with mud and cow dung Palledam Labour or handling charge Palledar Market labourer. Panchayat A body selected to act as umpires, from "panch" meaning five Pan One quarter, a quarter seer. Parkhy ... A sampler, an instrument for drawing samples from bags Patts ... Sale receipt .. Phalla .. Beam used in threshing grain and oilseeds Phanks A deduction for loss in handling Phut katots .. A deduction for giving small change Fins .. A kind of sweetmeat made from linseed and gur Pingrapole Institution providing shelter for cattle. Perdah or parda Acover A Bombay measure of 4 seers R

Rabi Spring erop